

Old
Series,
Vol. LV

CONTINUATION OF THE
BULLETIN OF THE NUTTALL ORNITHOLOGICAL CLUB

New
Series,
Vol. XLVII

The Auk

A Quarterly Journal of Ornithology

Vol. XLVII

APRIL, 1930

No. 2



PUBLISHED BY

The American Ornithologists' Union

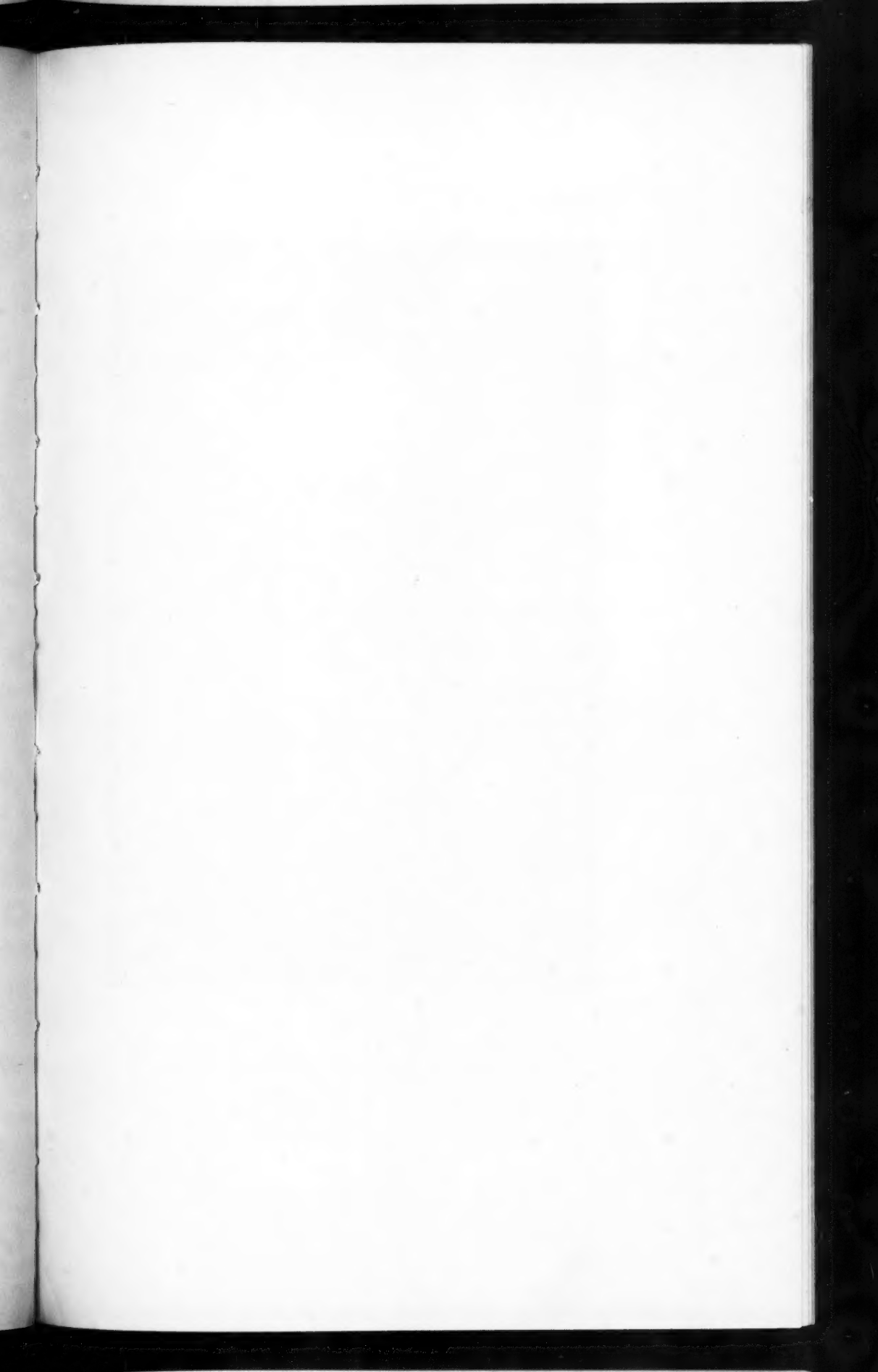
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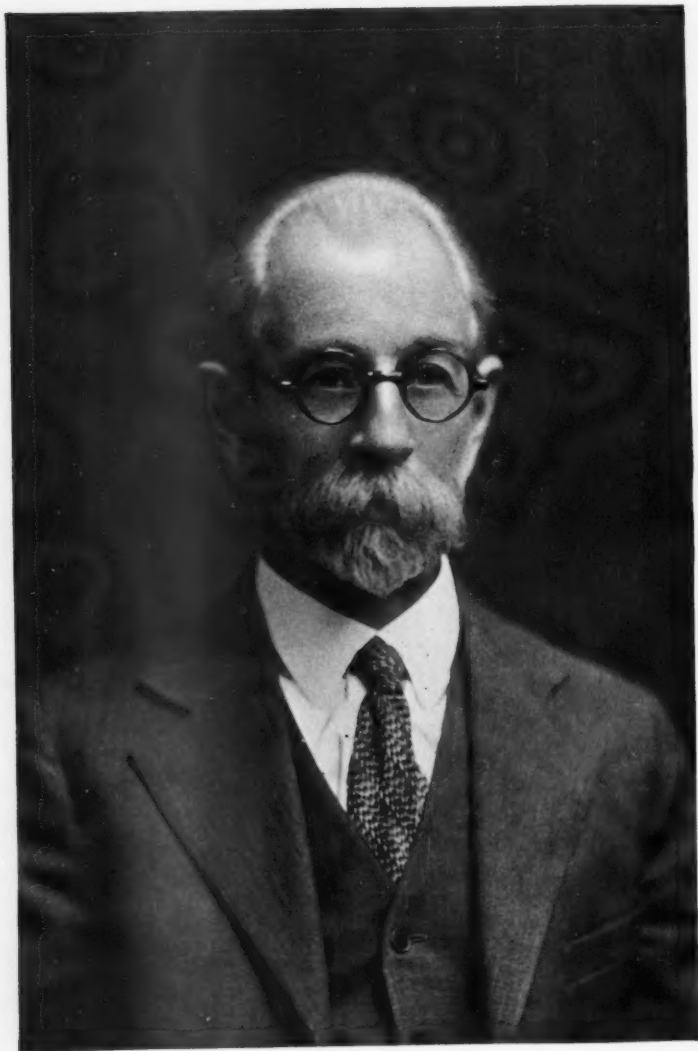
Entered as second-class mail matter in the Post Office at Lancaster, Pa.

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E. H. Forbush.

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IN MEMORIAM: EDWARD HOWE FORBUSH.

Born April 24, 1858—Died March 7, 1929.

BY T. GILBERT PEARSON.

Plate IV.

EDWARD HOWE FORBUSH exhibited in a marked degree qualities of charity, modesty, and sincerity. It was a privilege to know him and an inspiration and benediction to work with him. There was no touch of sordidness in his nature. Throughout his life, as Kipling said of Walcott Balestier, "He walked in simpleness and gentleness and humor and clean mirth." His public work was chiefly that of an ornithologist and conservationist of wild life and in these highly worthy fields of endeavor his outstanding abilities and tireless energy made of him a man of great usefulness.

Mr. Forbush came of stock rooted in the soil of New England for nearly three hundred years. His father, Leander Pomeroy Forbush, was principal of the Coddington School of Quincy, Massachusetts, when Edward was born. Soon after this event the family moved to West Roxbury, Massachusetts.

Throughout his boyhood this future naturalist exhibited an originality and venturesomeness that led him into various difficulties, such as falling into a cistern, sliding from a house roof, breaking through ice and riding down the cellar stairs on a chair. He also recorded having learned some of the laws of Nature when he dropped a lighted match into a bottle of gun-powder and again when he attempted to stimulate the fire in a range by pouring into it naphtha from its container.

His youthful inquisitiveness, however, lead him into other fields of exploration which produced most interesting, if less startling, results. The region around West Roxbury, then but slightly developed, offered splendid opportunities for one to become intimately acquainted with the native vegetation and the denizens of the Massachusetts forests, fields and seashore. Forbush, when not in school, employed much of his time in wandering afield and learning first-hand from Nature's Book.

Like many another country boy, he employed stones, self-made bows and arrows, and later the gun for the purpose of killing birds, which first he examined curiously and later with great care and interest. At the age of fourteen he took up taxidermy that he might preserve his specimens. He made voluminous notes on the appearance, songs and habits of birds.

His father went into business in Worcester, and at the age of fifteen Edward gave up school to help him. He has written, "My vocations for the next seven years were those of farmer, laborer and mechanic; my avocation, the study of Nature." At Worcester he found congenial associates in the membership of the Worcester Natural History Society and at sixteen was given the title of "Curator of Ornithology" in the Society's Museum.

When eighteen he began collecting with the late Charles J. Maynard, but soon acquired rheumatism from wading in the Charles River. The next year he joined a small expedition down the East coast of Florida, for the double purpose of collecting specimens and to get rid of his ailment. The trip proved successful from both standpoints.

Upon returning he became President of the Worcester Natural History Society and was active with others in building up interest in that organization and its course of Natural History study. This institution in 1885 established a summer camp for Nature Study, which was carried on for several years under the leadership of Mr. Forbush. It was regarded as a unique undertaking in those days, and was sometimes mentioned as the first attempt to give summer instruction in Nature since Agassiz's famous school on the Island of Penekese in 1873. He found this a very useful outlet for his teaching abilities, but there came a time when Forbush, like most men, had to earn a living for himself and family.

Consequently in 1886 he made a second collecting trip to Florida and in 1888 journeyed to Washington Territory and western Canada for the same purpose. In 'Forest and Stream' and elsewhere he wrote entertainingly of the experiences of a "Hunter Naturalist" as he styled himself.

In 1891 the State Gypsy Moth Commission, recently created, appointed Forbush director of its field-work for "Gypsy Moth Suppression." At once he became engrossed in fighting this extremely troublesome plague and in teaching the public methods of helping combat its ravages. The monograph prepared by him and C. H. Fernald on the Gypsy Moth in 1896, and published by the State, has been regarded as a highly authoritative work. After nine years of faithful efforts he resigned his position. Politicians had become active and effective and the appropriation for this work had been cut in half.

In 1893 Mr. Forbush was given the title of Ornithologist to the Massachusetts State Board of Agriculture. At first this position was, to an extent, honorary, but afterwards came to be of more practical value to him. Fifteen years later his title was changed to State Ornithologist.

In 1920 he was appointed Director of the Division of Ornithology of the recently organized State Department of Agriculture, a position which he held until his compulsory retirement, on April 24, 1928, when he reached the age of seventy, the age limit for State officers in Massachusetts.

In the meantime an opportunity came for service which was greatly to his liking. In January 1905 the National Association of Audubon Societies was incorporated and two years later Forbush assumed a salaried position as its Field Agent for New England. He had become tired of collecting birds and once said that even at the age of fifteen, "The excitement of the chase sometimes was followed by reaction and remorse at the death of the lovely creatures slain, as I fondly believed, in the interest of Science."

His position with the Audubon Association, coupled with his State work, removed the financial necessity for further collecting and from that time forward his life was almost wholly devoted to studying the living bird and interesting others in means for its preservation. Much of his time was spent in writing and lecturing

on the economic value of birds and in legislative efforts for bird-protection in various New England States. His name was becoming widely known and many calls for his lectures came from different parts of the country. Seldom did he accept those from a distance, feeling as he did that his main work lay in New England.

To give some idea of Forbush's undertakings at this period of his life let me quote from his report made to William Dutcher in October 1907:

"My work with the National Association began in January with the introduction of two bills into the Massachusetts Legislature. One of these was drawn to protect the larger Gulls at all times, and the other to prohibit all spring shooting of Wild Ducks. While these bills were pending, Congress refused the appropriation for the Bureau of Biological Survey of the United States Department of Agriculture, and it became necessary at once to concentrate all efforts on the attempt to make more widely known the importance of the work of the Survey.

"From January 15 to June 1, my time was given mainly to legislative work in Connecticut, Massachusetts and New Hampshire. This work was almost uniformly successful, as all the measures advocated were enacted, with the exception of the anti-spring shooting bill in Massachusetts. All proposed bills inimical to bird-protection were defeated. The bill to protect the Gulls was enacted largely through the efforts of Dr. George W. Field, Chairman of the Commission on Fisheries and Game. I followed through all its stages a bill to protect Loons and Eagles, and another, introduced by the Fall River Natural History Society, to protect the more useful Owls and Hawks. A bill requiring non-residents hunting within the State to procure a \$10 license was also advocated and supported through all its stages.

"The bill to authorize the Commission on Fisheries and Game to take land on the Island of Martha's Vineyard, to be used in conserving and propagating the nearly extinct Heath Hen, met with considerable opposition in the Ways and Means Committee and was delayed until late in the session; but the Chairman of the Fish and Game Commission, together with Mr. William Brewster, President of the Massachusetts Audubon Society, and many other friends of the bill, came handsomely to its support, and a redraft

was finally passed. The commissioners have now taken, by gift or otherwise, about two thousand acres of land, and are protecting this vanishing game-bird in its last stronghold, where they intend, if possible, to propagate it, so that it may, in time, take the place it formerly occupied in the Atlantic Coast States.

"The campaign in Connecticut was long and tedious, occupying more than five months, but was finally successful in every respect. The forces which for so many years had been able to keep open a spring-shooting season for wild fowl, Snipe and shore-birds, were defeated and demoralized for the time being, and all shooting of these birds is now prohibited in Connecticut from January 1 to September 1. The enactment of this law was finally followed by that of another requiring the registration of all hunters. This is the greatest gain ever made by the bird-protectionists in Connecticut, for it provides money in the shape of license fees to be used for the enforcement of the game and bird laws, which were formerly little respected in many parts of the State. Another law, which was strongly advocated and passed, prohibits the sale of upland game-birds for a period of years. The Connecticut legislation was upheld by the Audubon Society, by many enlightened sportsmen and intelligent farmers, and opposed mainly by market-hunters and others who care nothing about the extermination of the birds provided they get their share of the birds or the money which is expended in hunting them.

"My work in New Hampshire was mainly devoted to the support of a so-called omnibus bill for the protection of fish, birds and game, and bills for protecting the Wood Duck, Upland Plover and Killdeer at all times for a series of years."

Again in 1908 Forbush reported: "A new feature of the educational work consisted in the publication, in fifty New England newspapers, of a series of articles on birds and bird-protection, written monthly or semi-monthly as time allowed. This series has been continued through the year. Eighty-two talks and lectures on the utility of birds and the means of attracting and protecting them were given in Connecticut, Rhode Island, Massachusetts, New Hampshire and Maine. The audiences have consisted mainly of students of universities, colleges and schools, and members of clubs and farmers' organizations, aggregating nearly twenty thousand people."

Let me quote once more, taking a single paragraph from his report of 1912:

"The greatest fight made by the Association during the session (of the Massachusetts Legislature) was waged for the passage of a bill to stop the sale of native wild game. This bill was passed, although its enemies tried to defeat it by every possible means. The fight was so long and severe that it taxed all the resources of the [Audubon] Association."

It may be added that this same struggle also taxed the patience of some of his best friends for at that time many good men still saw no necessity for stopping the sale of native game-birds that had been killed and transported legally. One of these was William Brewster to whom Forbush owed much. Mr. Brewster, who had been one of the pioneers in the organization of the Audubon Society movement, resigned at this time from the Board of Directors of the National Association of Audubon Societies stating that his reason for doing so was that he wholly disapproved of the work of the Association's New England agent in working for the passage of a non-sale game law in Massachusetts.

In these reports by Forbush, as New England Field Agent, published usually in the November-December issue of 'Bird-Lore' over a period of twenty-two years, one may find that he was always in the foreground of the legislative campaigns that constantly were being waged by the defenders of the wild bird and animal life of New England. Great changes were wrought in his life-time in the field of conservation. From being one of the backward nations of the world in the matter of bird-protective laws he lived to see written upon the Statute Books of the United States the most enlightened, comprehensive and altogether most splendidly workable bird and game enactments of any country.

He also lived to see a tremendous nation-wide sentiment arise for the enforcement of such laws. In the accomplishment of this vast improvement Edward Howe Forbush played a powerful part and rendered service of tremendous importance.

Turning now to a more intimate view of the man of whom I write, I well recall a day late in Autumn when at Cape Cod for many hours we tramped together over the sand-dunes of Barnstable while he pointed out the various groves that the Night Heron colony of the region had occupied.

This was a territory much beloved by him. With glowing face and exultant voice he pointed out a place where he had once seen a Brown Thrasher very late in the season and again he said, "This is, I think, the very spot where I once flushed a Woodcock." He seemed to love every sand-hill, every flat and every stunted pine or wasting snag. He was like an eager boy, and he must look through his field-glass at every bird, whether it was a Flicker on a dead tree or a Gull dawdling along over the surf.

It was getting late in the evening when we neared the house where we were to pass the night. We had been rowing a stubborn boat for some miles against a head-tide and I was glad that exertions for the day were about over. As our boat grated on the margin Forbush sprang out, glass in hand, and was off to inspect a small company of Sandpipers feeding along the water's edge. They appeared to be Least or Semi-palmated, or possibly both species were in the flock. I was quite willing to let further investigation rest, but not Forbush. He wanted to make sure as to which species these were, and if both were present, then he wanted to know how many of each. The birds were not new to either of us. For more than half a life-time we had known them and we had seen flocks of them on hundreds of beaches and mud-flats.

I was tired and hungry and in an attempt to forestall what I saw bid fair to be a prolonged period of waiting while he followed a constantly moving band of birds, I advised him that these were nothing but Avocets and Oystercatchers, and to come on and let us get ready for supper. My levity, however, was without avail. He persisted until he had satisfied himself as to the identity of every one of those ten birds. I asked him if he made that kind of investigation every time he discovered a flock of Sandpipers. "Not always," he replied, and then added with a smile, "Sometimes they fly before I can name them all." Why did he so often give birds such close scrutiny, especially representatives of those species with which he had long and familiar acquaintance? What useful purpose was to be served by employing so much time in this way? His conduct in many cases I think was not prompted by any expectation of learning anything new about the birds, but simply because he had such an intense interest in birds that he never tired of watching their movements no matter how well he knew them.

This life-time habit had the effect, however, all unconsciously on his part, of etching on his mind such intense mental pictures of the birds that he could write of their habits in an unusually intimate and interesting manner. In short, he knew his birds so well that when he talked of them he spoke as one having authority.

I had other opportunities to observe the tremendous enthusiasm which Forbush displayed when in the field. For instance, in July 1914, as guests of William P. Wharton, on his yacht the "Avocet," we spent eight days cruising among the islands on the coast of Maine, visiting the Audubon wardens and noting the condition of the sea-bird colonies they were guarding. Repeatedly we watched the actions of adult Herring Gulls killing the young of their own kind. We examined several dozen that had thus lost their lives and I recall his comment that in every case they had been killed by blows on the head.

In a Night Heron colony on Bradbury Island we noted the body of a dead young bird caught in the twigs of the nest. Tragedies are frequent about all breeding colonies of birds, but curiosity led me to climb the tree and examine this particular specimen. I threw it down to Forbush and asked him what he could make of it. The breast had been almost wholly torn away and the viscera removed. He at once abandoned interest in all other actions and plunged through the underbrush in search of the remains of other young birds that might have been similarly destroyed. At least a dozen such were found. Evidently something with wings was killing the fledgling Night Herons. Forbush quickly pointed out reasons that convinced him it was not the work of a Hawk or Owl, and when a little later we found a family of Ravens and I suggested that here were the culprits, he replied that this might be true but cautioned that we could not claim such to be a fact unless a Raven was discovered in the act of killing or eating a victim. He displayed the true scientific spirit of not jumping to conclusions, and so far as my experience with him extended, he always suspended judgment on a natural history question until absolute proof became available.

On this trip Forbush spent much time photographing the water-birds, their nests and eggs. When I asked him what use he had for all these pictures of subjects that had been so often photographed by others, he characteristically remarked: "Maybe a writer or

lecturer will have use for these sometime." Thus ever was he planning to serve other people.

Reverend Robert F. Cheney of Southboro, Massachusetts, prepared "A List of the Writings of Edward Howe Forbush," and this was published in connection with the biographical sketch prepared by Dr. John B. May, and published in April 1928 in the 'Proceedings of the Boston Society of Natural History.'

In this catalogue Dr. Cheney lists 172 titles of magazine articles, reports and books. The first publication he records is that of an article entitled, "Our Birds in August" printed in the 'Worcester Daily Spy,' of August 14, 1880.

Forbush produced three works of outstanding importance: "Useful Birds and Their Protection," published in 1907; "A History of the Game Birds, Wild-fowl and Shore-birds of Massachusetts and Adjacent States" in 1912; and the well-known monumental effort that crowned his life, "Birds of Massachusetts and Other New England States." The first two volumes of this appeared in 1925 and 1927 respectively. The third and final volume, almost completed at the time of his death, will shortly be issued under the editorship of Dr. John B. May, his successor as State Ornithologist. Many of his productions were illustrated in part by his own drawings.

He collected ornithological notes in great volume and distributed these monthly in mimeographed form under the title, "Items of Interest."

Mr. Forbush's standing as an ornithologist was recognized when in 1903 he was elected a Member of the American Ornithologists' Union and again in 1912 when he was elevated to the rank of Fellow. For several years he was a member of the Union's Council. He served for twelve years as President of the Massachusetts Audubon Society, and was for a time President of the New England Bird Banding Association and of the Federation of Bird Clubs of New England.

On April 24, 1928 when Forbush reached the age of seventy, being a State employee, he was retired from service as State Ornithologist. The Directors of the National Association of Audubon Societies at once reinstated his salary as Field Agent and advised him that until Volume III of his great work was published no other time-taking duties would be expected of him.

At this time a dinner was tendered to him at the University Club in Boston. One hundred and twenty-five friends were present to do him honor on this occasion, which had been planned by the Associated Committees for Wild Life Conservation.

He was married to Miss Etta L. Hill of Upton, Massachusetts, on June 28, 1882. She and their four children survive him.

On March 10, 1929, a company of friends gathered in Westboro, Massachusetts to attend the funeral of Edward Howe Forbush, and in sorrow pay their respects to the memory of one of America's most useful ornithologists of the passing generation.

*National Association of Audubon Societies,
1974 Broadway, New York City.*

IN MEMORIAM: FREDERICK AUGUSTUS LUCAS.

BORN MARCH 25, 1852—DIED FEBRUARY 9, 1929.

BY CHARLES HASKINS TOWNSEND.

Plate V.

THE common expression "He was well educated for the work he was to do" is not always a satisfactory one. Outside of certain professions, men who do important work usually get their education while they are doing it. Early schooling merely starts the process. Education with the man who knows what he wants to do goes on through life but a good start is of course important.

In the case of this man whose career was that of a naturalist and museum builder, the period that he spent in boyhood on board his father's sailing vessel "where thews are hardened and sea lessons learned," was an important one in his training. A boy on shipboard learns many things useful in after life. The "bo's'n," carpenter, sailmaker, and the first class men of the crew—all contribute toward making him "handy" and self-reliant, and mere ship discipline is wholesome. While the boy Lucas learned ship ways of doing things and saw something of foreign countries, he had the instincts of the naturalist and did not intend to become a sailor. He devised ways of catching sea birds which he skinned in the carpenter's shop. Thus, like a good many naturalists, he began with the birds.

Three years—two long voyages, 1861-62 and 1869-70, and two short ones—were spent at sea. His first long voyage was from New York to San Francisco, Japan, China and around the Cape of Good Hope, barely escaping the Confederate Cruiser "Florida" which was intercepting and destroying our clipper ships. The second voyage of eighteen months in 1869-70 was of greater importance. This took him from Boston to Valparaiso, Callao, the Chincha Islands, where the ship lay three months—greatly to his profit ornithologically, then to London and back to Boston. The close of this voyage found him eighteen years old and confronted with the problem of what to do for a living. He had an

ambition to become a taxidermist and collector of birds, due to the fact that he had an uncle who was an amateur taxidermist.

The small museum of Pierce Academy at Middleboro, Massachusetts, was the prime factor in determining that he should become a museum worker. This was the first museum he ever saw. That he went to Ward's Natural Science Establishment at Rochester in 1871—the most important factor in his life, was due to a friend who had met Professor Ward. This was his abiding place for the next eleven years.

Ward's was then a little hamlet of about fifteen buildings located near the University of Rochester. It was a little community by itself, a polyglot community, including American, French, German, Swiss and Italian employees, each of whom was an expert in some branch of preparatory work such as taxidermy, osteology, or plaster work. Eleven years at Ward's furnished excellent museum training. Due to a liking for mechanical work, in mastering the mounting of crustacea, small birds and skeletons, such practical matters as the packing of all sorts of objects from elephants to plaster casts, came to him as a part of the day's work. The mounting of skeletons especially was of importance to his future. Sorting over the contents of a maceration barrel comprising two or three skeletons was the best possible training in comparative anatomy and an excellent foundation for work in palaeontology which, through force of circumstances, fell to him later.

Museum methods have changed much since the early days of Ward's, and the establishment did much to further this development. In manuscript notes referring to this period of his life Lucas laments the disappearance of the "all round" naturalist. He also remarks that he never during those days read through any scientific book, never attended a course of scientific lectures, never did an hour's laboratory work, nor made a microscopic slide. While at Ward's he made the acquaintance of Dr. J. A. Allen, then a young man, through whose aid he published his first scientific paper on "The Species of Bornean Orangs."

Ward's was a gathering place for amateur naturalists trying to find themselves. Museums were few and they were glad to get a chance anywhere. They worked at taxidermy, osteology, making plaster casts of important fossils, identifying minerals and shells

and even helping with the rough work that had to be done. Most of them later won recognition as naturalists, explorers, college professors, museum directors and authors. Among the "alumni" were W. T. Hornaday, Carl Akeley, G. K. Cherrie, H. L. Ward, E. E. Howell, F. C. Baker, Prof. W. B. Barrows, Prof. W. M. Wheeler, Prof. G. K. Gilbert, Prof. H. E. Crampton, Prof. G. H. Chadwick, and many others, but none were "professors" at that time. The writer of this sketch was among those present in 1880.

Lucas was the manager of the establishment and participated in all the activities of the place. Kindly, cheerful, possessed of sound judgment, and interested in what all were doing, the spirit of the establishment was *earnestness*. All were indebted to him for training in museum methods that proved helpful in after life and, in fact, largely determined their careers. It has seemed desirable to dwell somewhat on his connection with this emporium of natural history material, which recently passed to the ownership of the University of Rochester. It was here that he trained himself as well as others, and from which he was called to be osteologist of the National Museum.

At this time, 1882, the Museum was beginning to occupy the new building next to the Smithsonian Institution, where it was then possible to try experiments in installation and exhibition that would not have been feasible in an older building. It was his good fortune to serve under G. Brown Goode whose labors had an important influence on the museums of America. There was a distinct "break away" from antiquated methods—Goode found in Lucas a most efficient helper. His desire, like Goode's, was to make a museum educational and interesting. Installation and labelling were of special interest to both of them. Here, and at the museums with which he was later connected, Lucas must have written thousands of his descriptive and unusually instructive labels. He has said that it was a liberal education to associate with the officers and workers he found at the National Museum, the Smithsonian, the Fish Commission and kindred institutions in Washington.

He took up the osteology of birds as material was readily obtainable. His skill as a preparator and the ability to make drawings stood him in good stead. His bibliography lists numerous

papers on the osteology and anatomy of birds. His first promotion came in 1887 when he was appointed Assistant Curator of Comparative Anatomy, becoming Curator in 1893.

In 1887, about fifty years after the Great Auk became extinct, Professor Baird sent Lucas on a cruise with the U. S. Fish Commission schooner *Grampus*, during which Funk Island and other islands were explored ornithologically. The late William Palmer was detailed for the trip to collect birds. The collection of bones of the Great Auk obtained at Funk Island equaled in extent all other existing collections combined. Lucas wrote a 36-page account of the gathering of this material and his subsequent study of it, together with five pages of bibliography relative to the Great Auk. This was followed by a 20-page supplementary report dealing further with the history of the Great Auk and other natural history features of the regions explored.

Among his numerous anatomical papers on birds are "The Weapons and Wings of Birds," "The Tongues of Birds," "Osteology of Fossil Birds of the Genus *Hesperornis*," etc.

He participated in the preparation and installation of many of the exhibits of the National Museum at the great industrial expositions held in some of the larger cities of the country. These governmental exhibits were models of their kind, and inspiring to museum men everywhere.

His last work for the National Museum was a mission to Newfoundland to secure the cast and skeleton of a fully-grown Blue or Sulphur-bottom whale, which was successfully carried out. This trip involved a stay of nearly two months at the whaling station at Balaena on the south coast of Newfoundland, and afforded an opportunity to obtain information in regard to three species of whales.

In 1896, Dr. Lucas was detailed by President Cleveland as a member of the international commission to make a scientific investigation of the condition of the fur seal herds of the North Pacific Ocean and Bering Sea. The other naturalist members were David Starr Jordan (chairman), Leonhard Stejneger and the writer. The British naturalist members were D'Arcy W. Thompson, and James M. Macoun.¹ The U. S. Fisheries steamer *Al-*

¹ Deceased 1920. Member A. O. U. Co-author *Birds of Canada*.

batross was placed at the service of the commission. By this time, the prolonged "Bering Sea Controversy" was reaching an acute stage. Pelagic sealing, with its heavy destruction of female seals, was still going on, although with greatly reduced catches, while the Pribilof seal herd had dwindled to about 400,000 seals of all classes. The decrease continued rapidly until 1911 when pelagic sealing was discontinued by international treaty. Dr. Lucas took part in the work both ashore and afloat, his inquiries being directed chiefly to anatomical points that had been matters of dispute. With the writer he made cruises among the sealing fleet and made many dissections of seal carcasses on the decks of the vessels. It was a personal gratification to have the results of his studies confirm the conclusions I had arrived at and published a year earlier in making similar anatomical observations. The four-volume report of the commission contains many references to his work. Seven of the articles in volume three were contributed by him. He found the great rookeries of sea birds at the Pribilofs a delight and visited most of them.

Lucas' third period of museum work, after twenty-two years in the National Museum, began in 1904 when he was called to Brooklyn as Curator in Chief of the Brooklyn Museum. Here he put into practice some of the results of past training and experience, although the Museum was not new and had a fairly well determined policy. The satisfactory results of his labors here are apparent to those who were previously acquainted with the natural history halls of this museum so largely devoted to art.

Dr. Lucas referred to his museum life as divided into four periods—beginning at "Ward's" and ending at the American Museum of Natural History which he entered as director in 1911. This great museum had still more definitely established policies than the one he found in Brooklyn seven years before. There were more and larger departments, each in charge of an experienced curator, his early friend J. A. Allen being curator of mammals. The exhibits were extensive and increasing rapidly as the natural result of expeditions continually in the field, and the museum was prosperous. Into such a situation this experienced museum man proceeded to fit himself and do the best he could for the institution.

His many abilities, his unfailing courtesies, and his considera-

tion for the feelings of others were soon revealed to his associates. His experience proved helpful and was warmly appreciated. To the always overloaded department of preparation he naturally devoted especial attention, although his physical strength was on the wane. Carlyle, in commenting on the futility of searching for *happiness*, said—in substance, turn to thy work and instead, find *blessedness*. While a man in his sixtieth year does not usually look for harder work, his vivid interest suffered little diminution.

Shortly before his death he was made Director Emeritus of the American Museum. At his funeral obsequies in Flushing, Long Island, there was a notable representation from the museums of the City.

Dr. Lucas was born in Plymouth, Massachusetts, on March 25, 1852, and died at his home in Flushing on February 9, 1929.

His parents were Augustus Henry and Eliza Oliver (Sylvester) Lucas. His father was a master mariner; his grandfather, Joseph Lucas, a member of the State Legislature and an inventor of nail cutting machinery, while his great grandmother, Ruby Fuller, was a descendent of Dr. Samuel Fuller of the Mayflower. Dr. Lucas was married on February 13, 1884, to Annie J., daughter of Matthew Edgar and had two daughters, Janette May and Annie Edgar Lucas.

Dr. Lucas was elected an Associate member of the American Ornithologists Union at the fifth meeting held in Boston in October, 1888. In 1892 he was made an Active Member and in November, 1901, through an amendment to the by-laws whereby the active members all became Fellows of the Union, he was given that distinction which he retained until 1921 when, at his own request, he was placed on the list of Retired Fellows. He was elected a member of the Council of the Union in 1905 and retained that position until his retirement.

Of the 350 natural history articles and notes published by Dr. Lucas, 104 relate to birds and more than a third of these were contributed to 'The Auk.' His bibliography does not by any means include all of his writings. The work he did for 'Johnston's Encyclopedia' in the late nineties was of decided importance and value. Being a persistent student of general natural history and a wise literary critic, his concise accounts of species could not

easily be improved upon. Such subjects as Auk, Armadillo, Crocodile, Elephant, Fisheries, Lyre-bird, Lizard, Megapodius, and a host of others both signed and unsigned, are highly satisfactory for the space afforded in an eight volume encyclopedia. This was his evening work at home for many months. His large card-catalogued collection of special pamphlets on the vertebrates—largely up to date, was his principal reference library.

While his bibliography aside from birds, deals largely with the other classes of vertebrates, there are contributions to other subjects such as palæontology, museum management, biography, and book reviews. In addition to his technical papers, Dr. Lucas provided two instructive and readable books for the publisher: "Animals Before Man in North America" and "Animals of the Past," each of which reached a seventh edition. A large proportion of his natural history papers may be described as "interestingly written."

His wide knowledge of the vertebrates and his unusually retentive memory made him a referee among his naturalist associates—much as we used to regard Dr. Theodore Gill around the Smithsonian, and he was fully as accommodating.

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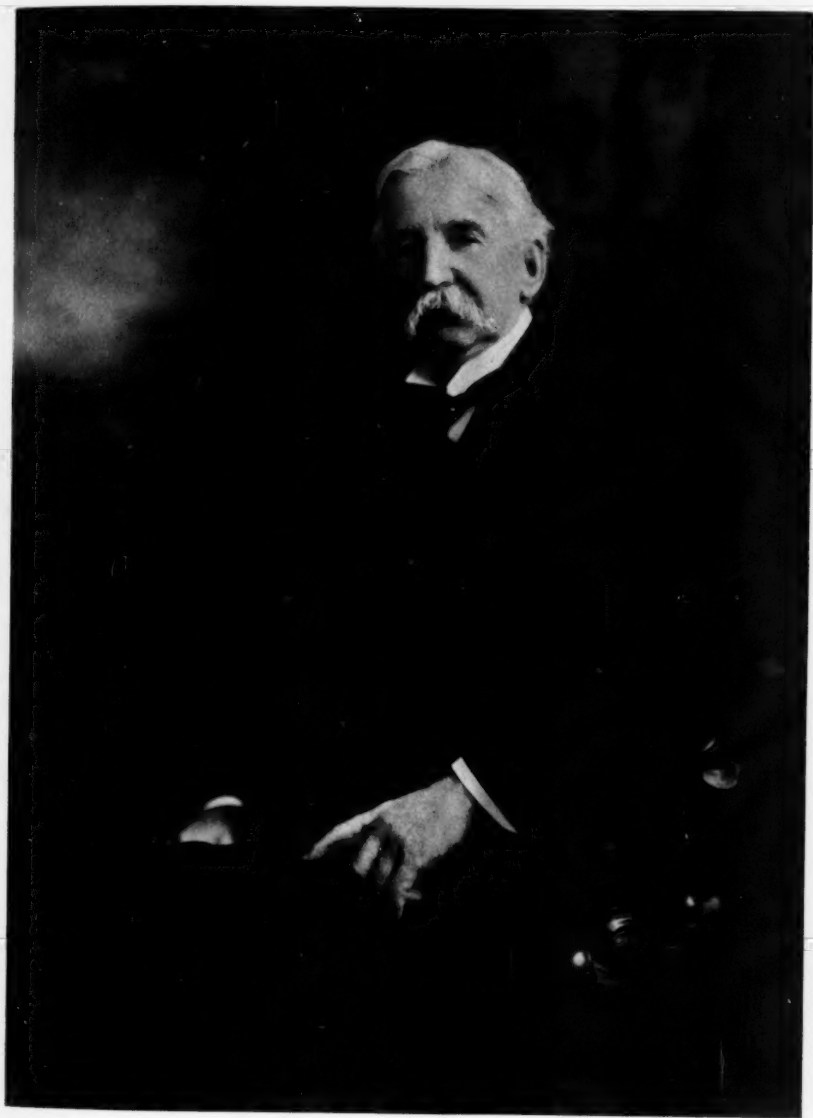
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Sincerely
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THE LIFE HISTORY OF SCOPUS UMBRETTA
BANNERMANI C. GRANT IN NATAL
SOUTH AFRICA.¹

BY RAYMOND BRIDGMAN COWLES.

Plates VI-IX.

THE Umbrette, *Scopus umbretta*, described first by Gmelin in 1789, is one of the most characteristic birds of African streams but until 1914 no sub-species had been proposed. In that year Kelsall suggested (*Ibis* p. 225) that the South and East African forms might be separable and so in the same year, 1914, Claude Grant in the 'Bulletin of the British Ornithological Club' separated the South and East African form as *Scopus umbretta bannermani* with the type locality Mt. Leganisho, Kenya colony.

This subdivision seems well warranted since the South and East African form possesses a decidedly longer wing, ranging in adult specimens between 295 and 334 mm. while that of the West African one ranges between 246 mm. and 263 mm. One specimen recorded from Portuguese Guinea seems to be intermediate since the wing measures 285 mm. (*Ibis* 1924, p. 210). The typical area in which *Scopus umbretta umbretta* seems to occur is in Sierra Leone.

The specimens collected and recorded from various parts of Africa and previous to 1914 determined as *Scopus umbretta* undoubtedly largely referable to *S. u. bannermani* and a study of these would probably throw a good deal of light on the actual distribution of the two sub-species and show additional specimens illustrating intergradation.

Although the sub-species of *Scopus* have received only a little attention from a taxonomic standpoint the same cannot be said for the family which it represents.

Owing to the peculiarities of the *Scopidae* there has been considerable debate as to the exact position of the family in relation to other families of Ciconiiformes. According to various

¹ The work here recorded was carried on under the direction of Dr. A. A. Allen of Cornell University, as part of the requirement for the degree of Doctor of Philosophy.

students it has been placed closer to the Storks than to the Herons but owing to many heron-like characters other competent students have placed it closer to the Herons. A careful consideration, even tabulation of the various characteristics of the *Scopidae* does not clarify the situation except to point to the impossibility of placing *Scopus* with either the Storks or the Herons.

Throughout most discussions there is frequent mention of *Balaeniceps rex* in connection with *Scopus* and a comparison of characters shows a distinct similarity between the two, a relationship between these two families closer than is that of either family to the Storks or the Herons. Reinhart (*Ibis* 1862, pp. 160-175) compares *Scopus* and *Balaeniceps* to *Cancroma*, but as later authors have shown, the resemblance is entirely superficial.

Throughout the various discussions as to the position of *Scopus*, a great many characters, both external and internal are invoked in order to show relationship, but so many exceptions exist that most conclusions are invalidated by the work of later authors who have brought to light similar characters in widely separated groups. The most constantly held, and logical conclusion is that *Balaeniceps* and *Scopus* are not distantly separated, and that the present position of the *Scopidae*, that is between the Storks and the Herons and close to *Balaeniceps*, is the most tenable.

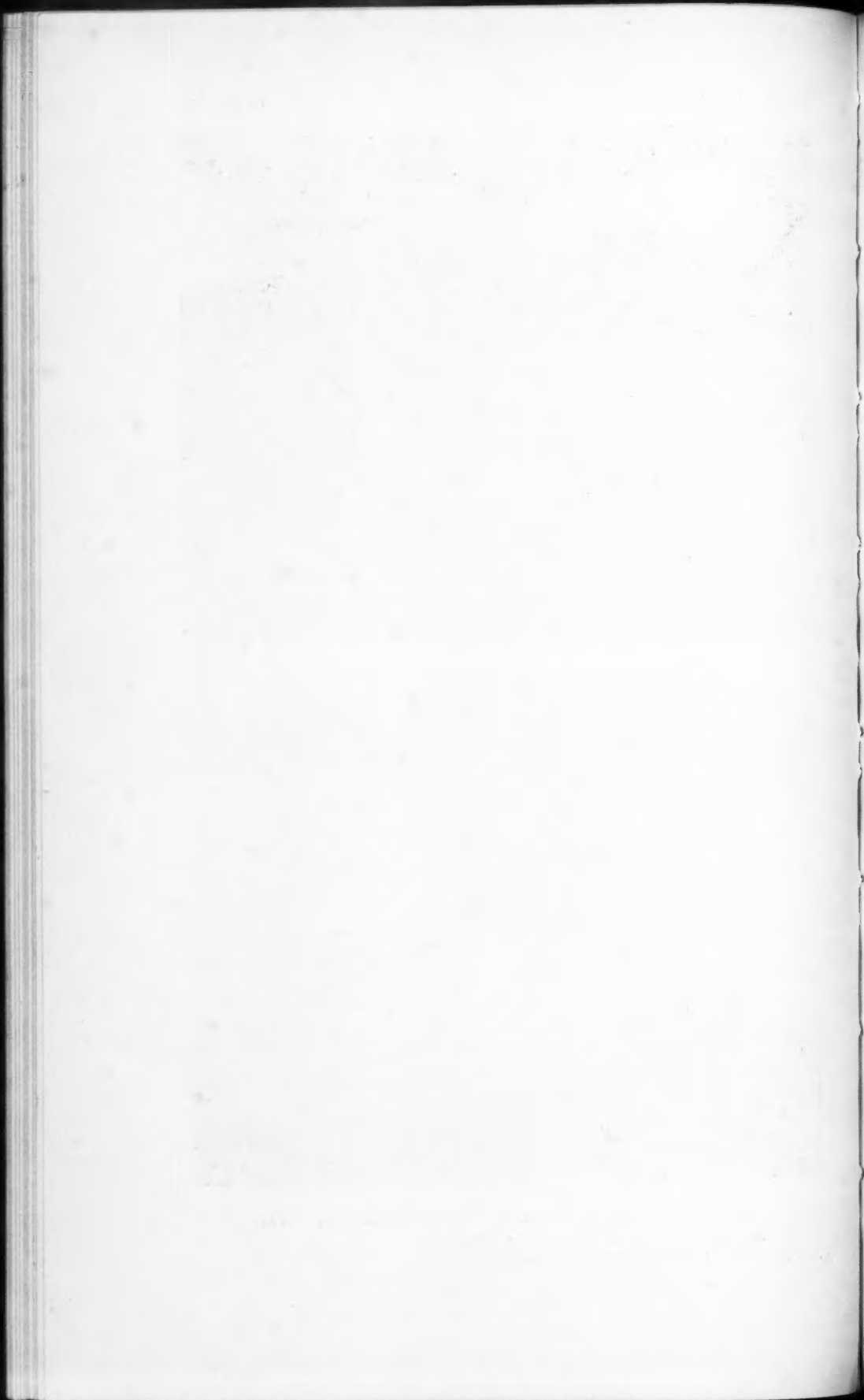
A review of the various arguments based on anatomy, or a discussion of the embryology and anatomy is not within the scope of the present paper, that of a life history.

Relationship as Suggested by Life History. An attempt to cast some light on the relationship of *Scopus* through peculiarities in nidification seems justified since in all groups of birds there seems to be a close adherence to a general, often common, type of nest. Exceptions exist as for instance in tree-nesting Ducks, or ground living Weaver-birds but even where exceptions do exist there usually remain features which are common to the group, or certain traits are retained.

The nest of *Scopus* (for detailed account see later pages) bears no resemblance to that of a Heron. To compare the two nests is as logical as to compare the nest of a Dove with that of an Oriole or Weaver-bird. The Heron nest so far as I am aware is never a stout or complex structure—in fact the tendency seems to be



UPPER.—NEW NEST OF THE HAMMERHEAD (*SCOPUS UMBRETTA*), TWELVE FEET,
ELEVEN INCHES BY TWELVE FEET FIVE INCHES.
LOWER.—ADULT HAMMERHEAD ON TOP OF NEST.



toward an exceedingly fragile or at least sketchy nest, while the nest of *Scopus* is large and rather complex.

Stork nests with their large mass, deep center depression, and even their location, that is, on a large and rugged support, much more nearly resemble the nest of *Scopus* even at a superficial glance. A thoughtful consideration of the structure of a *Scopus* nest suggests at once a Stork nest with the sides elevated to an exaggerated degree, and then continued to the point of being covered over.

The nest is most commonly placed in the fork of some fairly large tree not far from a stream and very frequently it overhangs the water. During the early stages of nest building sticks, cornstalks, roots and other suitable materials are placed in the fork of a tree until a broad and fairly solid foundation has been built. The sides of the nest are then added to until they begin to approach each other at the top. The inner part of the nest, that is the portion immediately surrounding the nest cavity, is well made and presents a smooth surface on the inside. It is never of the haphazard structure which the loose material on top of the nest suggests. The spaces between the material composing the sides of the nest are filled with mud, so that this part of the structure is exceedingly solid. Up to this point the nest bears a resemblance to a Stork nest, but here the resemblance ends for construction continues until the nest is closed over on all sides except for the entrance passage. The completion of the nest requires several weeks after the Stork-like stage has been reached, and is carried out by roofing over the entire structure. The roof is carelessly made, sticks and other odds and ends are merely placed one on top of the other until the huge and ungainly mass resembles a stack of flood drifted debris left in the tree by receding water.

In attempting to ascertain the process by which the *Scopus* or Umbrette was led to the building of such a structure it seems reasonable to suppose that originally the nest was Stork-like but that through the impulse to build the sides higher the nest became roofed over. In fact the instinct which would lead to this result is still very much in evidence, for the birds continue to bring nest material and add to the nest, long after it might be considered completed. In fact throughout incubation and even during the

growth of the young the parents continue to add material to the nest.

This impulse to continue additions to the nest is probably responsible for a habit which is so commonly observed, namely, that of placing old bones, rotting meat, pieces of hide and fecal matter on top of the nest. It is not at all difficult for a human to conceive of a state of mind resulting from two conflicting impulses, the one to bring food and the other to bring nesting material, sometimes being compromised with the result that material unfit for either purpose is brought to the nest and allowed to remain there.

Another item of interest in discussing possible bases for a consideration of the phylogenetic status of *Scopus* is the color of the eggs. These are white, the only variation being due to the brown stains from mud carried into the nest on the feet of the parent and from fecal matter. Since the shape and color of eggs is so often a character indicative of relationship the fact that Storks lay white or cream colored eggs is strongly suggestive of a possible relationship between *Scopus* and the Ciconiidae. Since the nest of *Scopus* is completely covered, the white color of the eggs is not as valuable a character as it might otherwise be, but upon consideration of the possible origin of the closed nest the fact is still worth recording.

The presence or absence of powder-down patches in the possible allies of *Scopus* has been frequently mentioned in the literature, as has been the occurrence of such patches in widely diversified groups, as certain Parrots, some Goatsuckers, Tinamous, *Mesites*, etc. On the other hand it is more significant in attempting to link *Scopus* to the Herons, that *Scopus* does not at any time show evidence of powderdown patches, and such a lack is more important in showing that there is no relationship with the Herons, a group which so consistently possesses these patches. On the other hand, contrary to statements which link *Scopus* and the Storks because of this common lack, it is obvious that the condition is of no significance here.

The evidence which has been brought forward in this discussion is not conclusive. It is suggestive, however, of the closeness of the relationship between *Scopus* and the Storks. Before making a decision it would seem advisable to await knowledge which could probably be obtained in the most satisfactory form from a study



UPPER.—YOUNG HAMMERHEAD, ABOUT SEVENTEEN DAYS OLD. OCTOBER 25, 1925.

LOWER.—SAME BIRD. NOVEMBER 16, 1925.



of the embryology of these groups with especial emphasis on *Scopus* and *Balaeniceps*.

THE LIFE HISTORY OF *Scopus umbretta bannermani*
IN NATAL, SOUTH AFRICA.

On every permanent stream of water in Natal one is apt to find a large, umbre-brown bird, disheveled in appearance, wandering about or silently standing near the water's edge. If alert, the bird seen from a distance resembles in size and body shape, a Black-crowned Night Heron. The head, however, will in all cases reveal the fact that the bird belongs to a distinct group; for this character plus the color, a monochrome and unattractive brown, is an infallible distinguishing characteristic. No other bird in Africa possesses so few characteristic color markings and yet is so easy to identify almost up to the limit of visibility. The head resembles a much blunted, almost worn out pick-axe with the curve pointing downward. This appearance results from the fact that the shape of the crest approximates that of the bill, and this is the character which gives the head its double ended effect.

This bird, *Scopus umbretta bannermani*, Umbrette, Hammerkop, or Mud Lark, is one of the most interesting birds of South Africa, not only to the ornithologist and to the white man but to the native also. This is well illustrated by the wealth of legends relating to it that is found among the natives, and by the fact that all the natives and most of the white inhabitants know the bird by at least one name. According to Sclater¹ the Dutch sometimes call the Hammerkop, "Paddevanger," or "toad-catcher," probably the most appropriate name next to Hammerkop or, in other words, Hammerhead. According to this authority the native names are as follows: Utekwane, by the Amaxosa; Itegwane, by the Zulus; and Machanoka by the Transvaal natives. Amongst the Zulus the nomenclature seems to vary, some calling the bird Utekwane and others Itegwane.

Amongst the Zulus the Hammerkop is considered a bird of evil omen and is greatly feared, while the Raven is considered innocuous, and the Owl only slightly ominous. According to Robert Godfrey²

¹ The Fauna of South Africa. Birds, Vol. IV, p. 52.

² Blythswood Review, Vol. II, No. 23, November 1925.

"The Kafir boys are told by their parents that, if they put their hand into this bird's nest, the bird will come out and cut off their hair, and, using it after the fashion of a sorcerer will be able to work them harm. On this account the native boys are afraid to put their hands into the nest, though some are bold enough to set fire to it. In Blythswood a Hammerhead was once brought to me with a broken wing; it had paid this penalty through neglecting to budge out of the way of a superstitious passer-by.

"When rain is scarce, the boys kill one of these birds, tie a string around its legs, and hang it on a tree, head downwards; this gives the old people great hope that the rain will soon come. In Basutoland the Hammerhead is immune from harm as it is believed to go about with the lightning."

The Zulus, like the Basutos, believe in the association of this bird with the lightning and firmly believe that to kill one will bring the lightning down upon their kraal. Failing this, they believe that they are apt to be struck dead by lightning while out in the fields, and at best the killing of one of these birds is supposed to bring disease either to the cattle or to the family. A variation of the rain-making qualities of the bird appears occasionally amongst the Zulus but in this case the effect of killing the bird, irrespective of subsequent treatment, results in a violent deluge which, if only a comparatively minor affair, merely dissolves the house and its foundations (not difficult where houses are constructed of unbaked earth or loosely bound thatch grass); if a major punishment or reaction, the hills melt down and slide into the valleys. It is interesting to note that in most superstitions of this kind there is usually an alternative, and comparatively mild, infliction which may be visited on the transgressor!

Although some of the superstitions are without any visible foundation, there is a possibility that many of them have originated either directly or indirectly from certain nesting habits of the bird. If this is the case one may at least understand the distinct, though somewhat feeble, attempts of the natives to explain the results of tampering with the nests.

Distribution.—The local distribution of the Hammerhead is controlled by only one apparent factor, the presence of a permanent water supply and the coincident food supply. Although the bird

seems to prefer somewhat open country, broken at intervals with thick bush and scattered trees, it may be found at a considerable distance from such localities and has been reported to place its nest on the ground or on cliffs.¹ The writer has never had the fortune to find nests either on the ground or on cliffs but has found them in isolated trees standing near streams and at the opposite extreme, in thick "bush" (a wooded area composed of trees tangled together with a dense mass of vines). In no case has the nest been found closer to the ground than six feet (the nest in bush) nor over thirty feet above the ground.

The Hammerhead may be found about the lagoons that are formed where the streams and rivers flow into the sea, along the inland reaches of these streams, and on the high table lands back from the coast. The climate varies considerably at the different levels but in each station the birds seem to be successful in maintaining their numbers.

They are not found abundantly in any locality, the greatest number seen at one time being seven. This was observed from a train window, the birds having congregated on the shore of a lagoon formed by the damming of a river through sand thrown up by waves and tides.

Ordinarily the birds are solitary and pairs are rather infrequently seen except during the mating season and then only for short periods of time. A passing pair of birds will occasionally drop down and vociferously visit with a resident pair but this social intercourse lasts only a few minutes.

In general the birds (speaking of the species as a whole) may be said to exist over the greater part of Africa, their presence being largely limited by suitable local conditions. They are found also in Arabia and Madagascar.

The following account of the life history of the Hammerhead deals solely with observations made along the coastal belt, and almost entirely in that portion between the mouth of the Umzumbe river, where it empties into the Indian ocean, and a point approximately eighteen miles inland. It includes also observations made on the Umnambite stream from its junction with the Umzumbe river at the Umzumbe Mission station, to its source, a distance of

¹ Stark and Selater.

four or five miles. Umzumbe Mission station, the center from which the work was carried on, can best be indicated by a point sixteen miles north and east of Port Shepstone.

This area is in the thorny, scrubby, bush territory which follows the lower coastal belt and may reach 2000 ft. altitude, but its extent depends upon rainfall and temperature. Above this thorn-bush area the nature of the country changes and is composed of rolling, grass-covered hills with dense forest cover in the protected valleys and gorges. Along the shore and stretching back not over a mile or two in most places, the thorn-bush is bounded by a belt of country characterized by heavy growths of *Strelitzia*, *Carissa grandiflora*, and a small palmetto. The *Strelitzia* is frequently found in patches further inland but not associated with the other two plants, and where found inland in abundance, is generally directly exposed to the sea breezes.

The area under observation during the compilation of these data was approximately eighteen miles long and at the widest point, not over six miles in width. Only a small part was given careful survey and kept under close observation, this special district being approximately fifteen square miles in extent, and covering the junction of the Umzumbe and Umnambite, part of their courses and three subsidiary tributaries. The Umzumbe river, though never dry, is a small stream (in Natal called river), and the tributaries and the Umnambite itself, although permanent, are mere brooks.

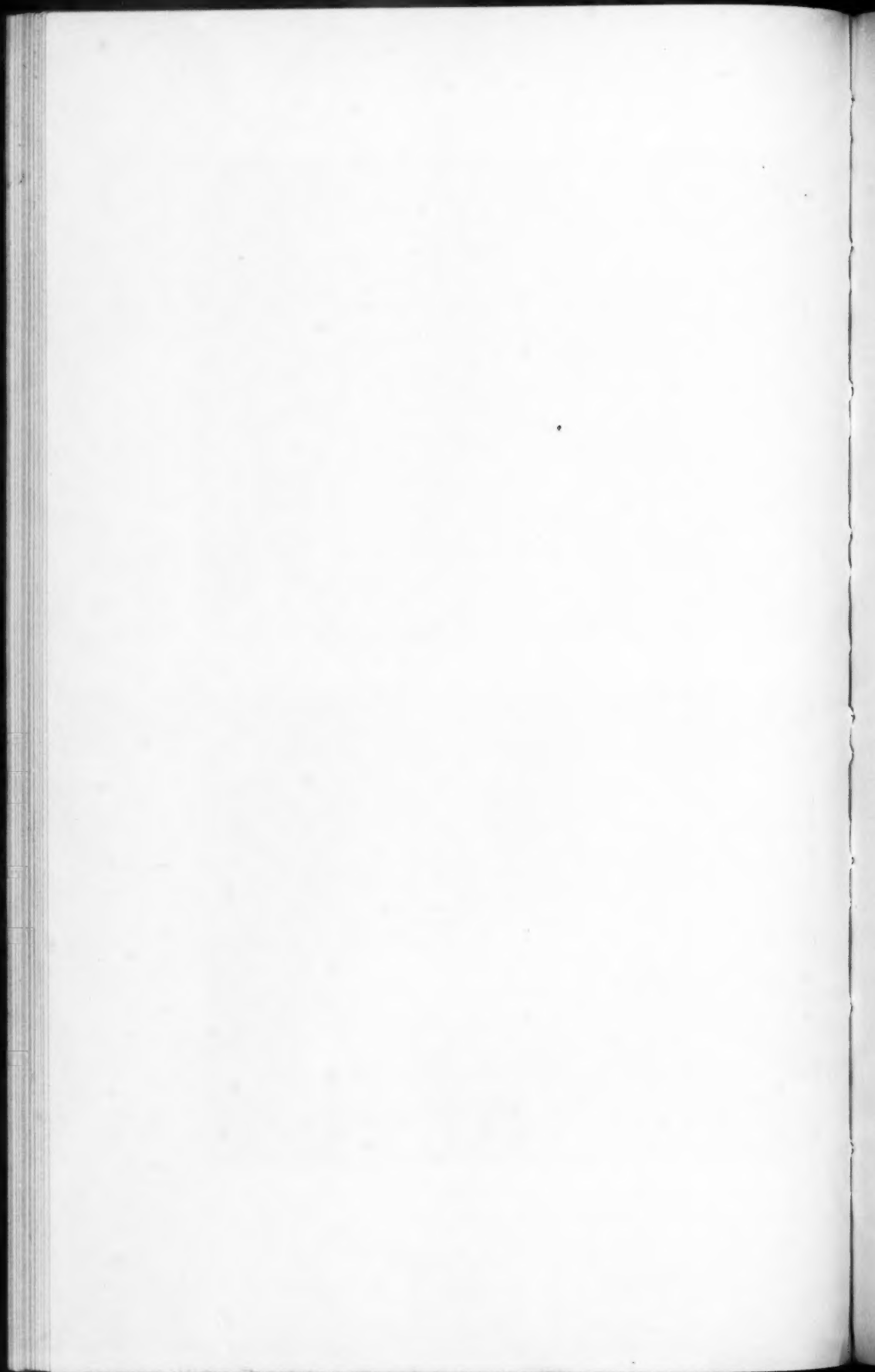
The rainfall in this area amounts to between twenty and thirty inches a year, delivered for the most part during the summer months of October, November, December, January and February. The winter months are dry, rainfall being slight.

Light frosts are occasional during the winter months but the days are warm, while in summer the highest personally observed temperature was 109° F. in the shade. This was extreme, however, and very unusual, and the temperature seldom rises higher than 95°.

Nesting sites in the area under observation were plentiful, considering the available supports or cover, and numbered fifteen altogether. Of these seven were at one time or another found to contain young Owls or comparatively fresh down showing that they had been used as nesting places by Owls. Four nests had been used



UPPER.—YOUNG HAMMERHEADS ABOUT A WEEK OLD. OCTOBER 13, 1925.
LOWER.—ADULT PERCHED NEAR THE NEST.



neither by Owls nor the original builder so far as evidence and information could be found, and only four were in use by the proper occupants. In other words, in this area the total number of Hammerheads to be found numbered only four pairs, and from actual observation of the birds one would be inclined to state that there were only two pairs in the entire area.

Dividing the number of nests by the pairs of birds gives, as an average number of nests to each pair, a fraction less than four. Owing to the fact that old nests are frequently destroyed by small boys and that three of these pairs of birds were nesting on native locations one would probably find a higher average number of nests to the pair than here stated. On the private property of the mission station one pair of birds had apparently built seven nests and were rearing a brood in one, while four of the nests were occupied or had been occupied by Owls. The ownership of only one of these nests can readily be questioned and, eliminating the one doubtful nest, we have an average of six nests to a pair, or a possible twenty-four to the four pairs. A careful check in other localities was not made at this time but in previous years, before undertaking careful observations, it was casually noticed that invariably the number of nests far exceeded the apparent number of birds. These previous observations cannot be checked for exactness, but the discrepancy between birds and nests was obvious. The earlier facts were observed on the Ifafa river and on the Amamzimtoti.

The Hammerhead is fortunately on the protected list. The natives, at present at least, are afraid to molest it and will probably continue to be at least wary for some years to come. There seems to be no immediate danger of extinction in any part of its range, a condition which it is hoped may continue.

Nest Building.—Observations on the four pairs of Hammerheads in the vicinity of the Umzumbi mission station indicate that a new nest is built each year. This is contrary to the general belief that the nests are used year after year. Two nests occupied by these birds were known to be new, one was observed while under construction, and from the appearance of the others it was surmised that they also were new. The new nests have a somewhat fresher appearance than the old ones, owing to the fact that in the old nests the material is invariably compacted through the effects of

use, weather and the ravages of insects in the material itself. New nests do not appear to be new, in fact the nest which was observed under construction was for a few days supposed to be old and broken-down. This appearance of age is due to the fact that dead sticks, corn stalks, corn cobs, old pieces of reeds, etc., are used, in nest building, and all or most of these materials have already been weathered thoroughly throughout the previous winter and when placed on a nest do not offer the usual evidence of having been recently gathered.

Old nests are rich collecting grounds for the entomologist. Beetles, cockroaches and many lesser insect inhabitants are present in the nest material as well as scarlet, gray-legged millipedes which are rather uncommon in other localities. These arthropods are doubtless attracted by the shelter afforded them in the interstices of the nest, and possibly by the abundant food supply originating either directly or indirectly from the filthy nesting habits of the original occupants or of the secondary occupants, the Owls.

Two common beliefs which are prevalent among both white and black inhabitants of the country, appear to be erroneous, judging by the limited quantity of evidence collected in this one locality. One of these beliefs is that the nest is partitioned off into compartments, each compartment having a separate exit. Where it is believed that only one compartment is present the belief that there is more than one exit or entrance is still commonly held, and in the case of the Zulus, has resulted in a proverbial comparison of the Hammerhead to a man who is hard to catch or pin down in conversation, i. e. "as slippery as an eel," for it is said that cutting off his escape in several directions still leaves him a remaining means of escape. This condition was not observed either at Umzumbe or elsewhere and it has possibly resulted from finding an occasional nest built on top of one or more old nests, although even this condition has not been observed by the writer.

A more common belief is that the nests are always built to present the entrance toward the East. This also has not been verified. Those nests examined at Umzumbe were constructed without regard to the cardinal points of the compass; in fact, two nests built in the same tree, and in all probability by the same birds, faced in opposite directions.



LEFT.—YOUNG HAMMERHEAD SHOWING REMAINS OF NATAL DOWN ON CREST.
RIGHT.—PAIR OF HAMMERHEADS JUST AFTER COURTSHIP ANTICS.





In the fifteen nests which were found in this vicinity, plus a few others which had been observed several years previously, only one opening and one chamber were present.

The outside dimensions in one nest were twelve feet eleven inches horizontal circumference at the point of greatest diameter, and twelve feet five inches vertical circumference at the point of greatest diameter. These measurements, which are those of an average nest still in use were obtained in the case of the horizontal circumference, not far from the top; while the vertical measurement was taken around the center of the nest. (The older and deserted nests become smaller through the compacting of material.) The most typically shaped nests are commonly built in the vertical or nearly vertical crotch of a tree, and are therefore top-shaped, with the small end pointing downward. These nests were invariably strong enough to support a man's weight and seemed impervious to moderate rain.

The inside dimensions are as follows: the entrance is nine inches wide and seven inches high, and curves downward from the nest chamber in such a way that it opens to the outside at a point on the lower surface of the nest well below the greatest bulge; the chamber is twenty-nine inches from entrance to the back of the nest, while the width is twenty and one-half inches; the depth of the nest chamber at the center, where it is greatest, is twelve inches. The entire chamber is of a roughly flattened or depressed egg shape. The entrance to the nest is marked off from the chamber proper by a slight elevation constructed where the opening commences the downward turn.

The nests are composed of a wide variety of material, limited apparently only by the size and carrying qualities. Lumps of mud, corn cobs, waste paper, old socks, an old gourd somewhat larger than an indoor baseball, part of a Zulu matsha or skin apron, portions of some old wool underwear, an occasional bone, reeds, sticks, roots, etc. were found in two nests.

The presence of so much in the way of personal property probably accounts in part at least for many of the superstitions. A superstitious native who believes that the possession of some of his personal property by a witch will enable that individual to bewitch him or cause his death, would naturally be alarmed upon seeing a

discarded article of clothing being carried off by this sombre bird. A habit observed in the case of the two nests carefully studied would be even more alarming to a savage. For some unknown reason these birds at the time of incubation or shortly thereafter commence collecting cattle, and other, excrement, some of which is apparently human excrement, and not only the excreta itself but also corn cobs and pieces of paper, etc., to which portions of excreta still cling. This habit was observed in both of the nests which were kept under careful observation and appeared not on one occasion only, but in several instances. The nests at this time assume a definite odor of human excrement, and, in one instance, when reaching down into the nest blindly and groping about feeling for the eggs, a hand was accidentally pushed into excreta which, though probably the bird's, undoubtedly bore a strong resemblance to human excrement. In this connection, there is of course the possibility that the bird's excrement has the odor and appearance characteristic of human faeces, which might explain the apparent habit of gathering the latter, but it could not explain the abundant evidence furnished by the sticks, corncobs, paper fragments, etc. Probably most of this type of filth is a combination, coming from the birds and from other sources.

The existence of this filthy condition may explain why the natives refuse to meddle with a nest still occupied by the birds, and may also explain their belief that tampering with the birds brings about disease or other calamity. On one occasion the writer slipped while climbing in the vicinity of a nest and scraped his arm on the rough bark of a tree. The scrape resembled that resulting from a fall onto hard ground, *i. e.* was merely a superficial abrasion. This abrasion was at once carefully washed in fresh water and half an hour later was painted with iodine after a second thorough washing. A few days later, and lasting for some days, there was a decided inflammation, pus formation and slight soreness under the arm-pit. This may have been simply a coincidence but it is interesting as pointing toward a possibility. At any rate, if this material is of human origin, during a bad epidemic of any intestinal disease it would probably be advisable for a Zulu who had worked about a nest to exercise more than Zulu care in regard to cleanliness before eating, especially where the hand is used in place of spoons or other utensils.

Presence of Owls in the Nest.—The species of Owl found occupying the nests is invariably the Cape Barn Owl, *Tyto alba affinis*. From the evidence pointing toward the conclusion that a new nest is built each year it is probable that the Owl simply makes use of an old nest. On the other hand, this habit of the Owls may account for the building of the new nest. In all cases but one, the Owls in possession of the nest had reared their young by early September to a stage which would permit them to maintain their nest against an invader even in the absence of the parent, and with the parent present, could without a doubt drive off the rightful owner, should it attempt to reoccupy the nest. Since with *Scopus*, September and October are the usual months for nesting it is conceivable that the Owls are responsible for the habit of building a new nest each year. Where the Cape Barn Owl is not as numerous and where it is scarce, these nests may be used by the original owner in succeeding years.

Courtship.—Courtship commences at least by the time of nest building, and probably shortly before; in one case courtship started as early as July first and lasted for a considerable time. In one case, the only case in which a nest was watched during building, two weeks passed without any work being added to that previously completed, possibly due to the nest having been examined and somewhat changed. When discovered, this nest was apparently only half completed and, according to a native who resided near this spot, had been under construction for two weeks, thus dating the commencing of the nest as the first of July or the last of June. Although two weeks elapsed without any work having been done on the nest it was complete, or nearly so by August 30. In other words, this nest required almost six weeks of active work for completion, during which time courtship continued. The nest contained four eggs on September 18, one recently laid. From observations on one other nest, it is probable that all work is frequently carried on in a rather haphazard fashion.

During the construction of the nest and after the eggs have been laid, courtship continues, taking place most frequently early in the morning and in the evening and sometimes during the day. This activity consists in a duet of loud, shrill calls which can sometimes be heard almost half a mile away, accompanied by a raising and

lowering of the wings. While the wings are raised and lowered they are steadily vibrated and a few slow steps are taken. At the conclusion of a courtship episode copulation may or may not take place. The act of copulation is somewhat more prolonged than in the case of the domestic fowl, and, during the process the male balances himself on the female by the use of his wings, and remains upright. Apparently the bill is not used as an aid to maintaining balance. The process of courtship and copulation has been observed from a distance of fifteen feet taking place on top of the nest.

Courtship takes place along the banks of the streams but the conclusion of the act, copulation, has not been observed in these localities though it doubtless takes place. Upon one occasion a visiting pair of birds approached the nest, one of them alighting. The three birds then performed the antics usually associated with courtship while the fourth continued to sail about the tree as though undecided as to what to do. After a few minutes two of the birds flew away leaving the original pair at work on top of the nest.

Egg Laying.—The usual laying time seems to be in October or the latter part of September; Selater, however, mentions a set of eggs obtained in May, while a nest containing four eggs, one of the four nests in the Umzumbe region, was discovered by August 30. Since two weeks are required for completing a set of eggs, it is probable that this pair of birds commenced laying about the middle of August.

The eggs, which are 47 x 35 mm., are at first pure white, showing in bright light, when unblown, a faint pinkish suffusion, probably due to coloring imparted by the contents. The surface, though not rough, is dull rather than glossy and, when left in the nest a few days, the egg becomes a muddy white, smeared with dirty marks obviously a result of the parent's muddy feet being placed upon them. The eggs have a tendency to sink into the floor of the nest and, on this account, the first set found was at first thought to consist of old, infertile, Owl's eggs. These were allowed to remain simply because the nest was already occupied by the Hammerhead and on the chance that they might be fresh Owl eggs belonging to a pair that had been driven out of the nest by the rightful owners. It was intended to keep track of the results of the incubation pro-

vided it was carried on, or to note the treatment accorded the supposedly foreign eggs.

Incubation.—During the laying of the eggs and the early stages of incubation courtship continues. Apparently for about a week after incubation commences, copulation may take place, but two weeks later it has practically ceased. The incubation period is about twenty-one days although, owing to the fact that the nest is a closed structure, it was found difficult to determine the exact commencement of incubation and the first hatching. The incubation period was determined by the removal of an egg from a nest containing a full complement, and the later discovery of a fresh egg which showed that it had been laid about five days previously. On September 28, this egg had already hatched and the down of the chick was dry, but the chick was probably not over three days old.

The young, at hatching, are covered with fine down as in young domestic chicks, but differ from them in color. The head, neck, wings, flanks, sides and all ventral portions are very light gray, almost white. The rest of the surface, from the tail to the scapular region, is dark gray. The legs and feet are pink and the bill black.

Development.—During early incubation the parents continue to bring sticks, etc., to the nest. Both seem to be present at times and, when they arrive with no new material they generally alight on top of the nest where, for a minute or two, they rearrange the materials. Occasionally one will arrive at the nest flying at a lower level and swoop up into the nest entrance with no preliminary steps.

During the early stages of development, or about two weeks after hatching, the parent birds added not only more excrement to the nest but also several varieties of other odorous objects. Bones of an antelope which had died not far from the nest seemed to be in greatest favor, also loose fragments of meat and skin. In addition to these fragments the decomposing bodies of frogs appeared, and, in one instance, the body of a still fresh, recently hatched Nile monitor. The presence of the frogs and Nile monitor might be explained by the supposed food habits, but it is difficult to understand the presence of the rest of the material. Possibly the birds are not averse to eating carrion but no evidence of this was obtained at any time, nor has the writer ever seen mention of such a habit in the literature.

A nest opened October 12 contained three young, the largest showing some signs of a crest. These could not have been over twelve days old as the nest was opened at noon on September 30 and three eggs were present. Judging by the young previously studied, it is probable that these chicks, when first observed, were six days old. It will be assumed for the sake of chronological arrangement, that this is the case, but in subsequent statements as to age it is to be understood that the chronology may be inaccurate to the extent of a few days, but not more than six at most.

At six days of age the young showed signs of a crest, were pearly gray and dark gray as in the case of those already described, and were too weak to walk although the oldest or largest one was able to crawl by using the wings. They exhibited no fear and could be handled without the slightest sign of alarm. After a few minutes exposure to the breeze, which was warm, they commenced to shiver and were returned to the nest.

On October 23, at the age of sixteen days, the quills of the wing were well developed, the crest plainly in evidence, and they were showing signs of pugnacity. The smallest of them had disappeared. The nest was being covered by the adults with all manner of filth, excrement, antelope flesh, etc.

On October 29, that is, at the age of twenty-three days, the head and neck were feathered, the primaries, secondaries, and tertials were sprouting as were also the tail feathers. The wing covert areas, back and lower surface were still down covered. When handled the chicks made slight sounds and, after being replaced in the nest were able to call quite loudly.

By November 3, twenty-seven days after hatching, the wing feathers had grown so that the tips of the primaries were one and one-half inches long. The crest feathers were well developed, bearing, at their tips, the stringy, grayish, natal down. The tail showed considerable growth although the quills were still in evidence. The larger individual showed considerable activity, moved readily about in the nest, tried to dodge and raised the wings up over the back when disturbed. The legs and feet were pale, grayish blue.

Two days later the nest was even more liberally covered with filth. November 5, when twenty-eight days old, the larger bird was wide awake, and when placed on top of the nest showed interest

in objects thirty or forty feet distant, and frequently peered over the edge. When alarmed or curious it was able to raise its crest; the voice was well developed and, if the bird took alarm so that its pugnacity was aroused, it reared back, opened the bill widely, spread the rami or appeared to do so, and, at any rate, managed to present an alarmingly large oral cavity.

The parents seemed to be more and more shy and were seldom seen about the nest.

By November 14 the young showed changes most conspicuously in the tail which showed bands of purplish brown iridescence. The bands were three in number at this date while only two days later four bands were present. The young were able to use their wings freely, to stand and walk about, though, for the most part, they still rested on their tarsi.

On November 21, when forty-four days or almost seven weeks old, the first bird left the nest before he could be examined. The other individual, probably the smaller of the two, showed six bands of color on the tail, and also showed a well-developed sense of fear. The white down tips of the crest feathers showed plainly, but, at a distance, it would be impossible to distinguish the young from an adult bird. Two days later this bird showed seven bands of color in the tail and on November 26, about seven weeks after hatching, it left the nest.

So far as could be discovered the young do not return to the nest for some time at least, after leaving, and probably, like most birds, never return. One frequently hears reports to the effect that these birds roost in their nest after the nesting season is over, but no evidence leading to that conclusion was collected during these studies; on the other hand, no evidence positively disproving such a theory is at hand.

Feeding Habits.—Unfortunately practically no data have been secured on this important phase of the life history. The birds were so scarce as to make it inadvisable to collect them.

One young bird, when several weeks old, regurgitated seven frog or toad larvae, one shrimp-like crustacean, and twenty-four winged termites.

On November 9 four birds, probably a family although it is not known whether or not the male helps in rearing, beyond aiding in

nest-building, were observed in an open field feeding on what seemed to be these same termite species.

Only one other observation bearing on feeding habits was made. In January two adult birds were seen feeding along the river margin, apparently on "tadpoles." At each successful capture their heads would be thrown backward and upward with a jerk while swallowing.

An object which looked like a toad was captured and was repeatedly bitten or pecked and washed in the river. After watching this procedure for several minutes an attempt was made to frighten the birds into dropping their prey but they flew away carrying the object with them.

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A HISTORICAL SKETCH OF BOTTERI'S SPARROW.

BY FRANCIS HARPER.

Plate X.

ALTHOUGH nature has endowed *Peucaea botteri* with little enough of intrinsic distinction in the way of plumage, form, habits, or song, there inevitably attaches to it the fascination of a *rara avis*. It was described by P. L. Slater (1858, p. 214) as *Zonotrichia botterii*, the type coming from the vicinity of Orizaba, in the State of Vera Cruz, Mexico. It was named in honor of Signor Matteo Botteri, to whom Slater referred as 'the well-known Dalmatian botanist and traveller,' and who had made a considerable collection of birds in the vicinity of Orizaba. Within the United States the species has been found only in southern Arizona and in the lower Rio Grande Valley of Texas. Southward its range extends through the length of Mexico. The only other members of its genus in our country are the Pine-woods, Bachman's and Cassin's Sparrows. Each has a breeding range distinct from that of the others, except that Cassin's and Botteri's Sparrows overlap along the Mexican boundary.

A single specimen taken by Dr. C. B. R. Kennerly in June, 1855, at or near Los Nogales, Sonora, on the Arizona border, was listed by Baird (1858, p. 486) as *Peucaea cassinii*, and later became the type of *Peucaea aestivalis* var. *arizonae* Ridgway (1873, p. 615). In spite of the bestowal of this name, there is nothing in the record to show that the species had been actually taken or observed in Arizona up to that time. Thus it apparently remained for H. W. Henshaw (1874, p. 118) to record the first specimen from the United States. His experience with the species in September of two successive years, 1873 and 1874, when he collected 14 specimens at Camp Grant, Camp Crittenden, and Cienaga, Arizona, also enabled him to present (1875, p. 285-287) the most comprehensive account of its habits that has hitherto appeared. In fact, very little of significance except the finding of the nest and eggs by Merrill (1878, p. 127) seems to have been added to our knowledge of its life-history in the succeeding 54 years.

In Henshaw's experience, Botteri's Sparrow differed entirely from Cassin's 'in choice of habitat, habits, and especially in song.' Instead of frequenting the open plains, it was found in the valleys, either among rank, high grass or in dense willow thickets, always in close proximity to water. It was quite exclusively terrestrial, and when flushed, would usually drop down into the covert after flying a few yards. Specimens could be collected only on the wing. The males always sang from the top of some bush. 'The song begins with a faint trill, followed by a succession of disjointed syllables, which may be expressed by the syllables *cha, chewee, wee, wee, wee, wir*, the whole delivered in a rather monotonous, listless manner, and remarkable for little else save its extreme oddity, it being entirely different from any song I have ever heard.' Young in nestling plumage were taken in September, and apparently some of the females had not then finished incubation.

On August 8 and 9, 1884, Stephens (1885, p. 226) found a number of individuals in the Altar Valley, southern Arizona. During the latter part of June, 1891, in the vicinity of Oracle, Pinal County, Arizona, Rhoads (1892, p. 121) found this species frequenting 'the thick bunches of bear-grass just below the lower edge of the oak belt.' The birds 'were breeding and were very shy At no time did they leave the ground save to perch on the lowly bear-grass stems and utter a rather sweet song. Four individuals were seen' and 'three were secured.' One of these specimens is now in the collection of the Philadelphia Academy.

Rhoads's record is apparently the last one that has been published for the species in Arizona, although J. A. Weber informs me that the Dwight Collection at the American Museum of Natural History contains a specimen collected at Fairbank on August 18, 1893. Swarth (1929, pp. 281, 328) is inclined to ascribe the disappearance of the birds to the over-grazing of the grass-grown lowlands which they formerly frequented. 'When years of drought came every vestige of their natural cover was destroyed.'

The history of Botteri's Sparrow in Texas up to 1929 may be chronicled quite briefly. Merrill (1878, p. 127) found it 'in some abundance on a salt prairie about nine miles from Fort Brown [Brownsville] Its notes were frequently heard, and are quite pleasing.' On June 16, 1877, he discovered a nest with four eggs,

which were 'unspotted white, strongly tinged with greenish blue,' and measured $.82 \times .63$ inches. These eggs, which were apparently deposited in the U. S. National Museum, seem to constitute the only ones on record. According to Griscom and Crosby (1926, p. 25), 'Sennett's collectors sent him two specimens [skins], collected May 24, 1889, and Aug. 25, 1888. It has not been rediscovered by recent collectors.' There is a specimen in the collection of the Philadelphia Academy, taken on August 16, 1893, and received from F. B. Armstrong, of Brownsville, but unfortunately there seems to be no definite assurance as to the exact locality of Armstrong's specimens of that period. In 1908, however, just across the river at Matamoros, Mexico, he collected nine specimens between August 13 and September 13, as reported by Phillips (1911, p. 88).

Since the beginning of the century the remarkable avifauna of the Brownsville region has attracted many other collectors and observers, including Mr. and Mrs. Bailey, R. D. Camp,¹ Austin Paul Smith, Pearson, Pemberton, Bent, Eifrig, Griscom, Crosby, Arthur A. Allen, Friedmann, J. A. Weber, and Major Brooks, but none have reported Botteri's Sparrow in Texas. This is all the more surprising in view of its status in 1929. There is very likely some periodic fluctuation in the numbers of this species, and it may have reached one of the peaks of its abundance in 1929. It would be very difficult to conceive, however, of its being altogether absent from Texas during the preceding 36 years or more. Its close similarity to the much better-known Cassin's Sparrow is a very probable factor in its being overlooked. No such condition of overgrazing, as reported by Swarth in Arizona, exists in the Brownsville region at the present time, and I am not aware that it has existed in the past.

The present lack of winter dates among the comparatively few records for Arizona and Texas, at the northern limits of its range, does not, of course, prove that the species is migratory. Swarth (1914, p. 56) considers it 'possibly resident.' Cooke remarks (1914, p. 177) that it is 'scarcely, if at all, migratory.'

¹ When this paper was presented in abbreviated form at the A. O. U. meeting in Philadelphia, 1929, Rev. C. W. G. Eifrig quoted the late Mr. Camp as remarking a few years ago that he had not found Botteri's Sparrow during all the years of his experience in the region.

A colored plate by Fuertes, accompanying Cooke's article, represents the bird perched upon a prickly pear (*Opuntia*), which is certainly a characteristic plant in its Texas haunts.

I am indebted to C. Brooke Worth, of St. Davids, Pa., for the first clue to the exact whereabouts of this species. On July 17, 1929, he discovered a sparrow on its nest in a salt prairie midway between Brownsville and Point Isabel. He even succeeded in capturing the bird on the nest with a butterfly net and in banding it. With the live bird in one hand and a bird manual in the other, he endeavored to identify it positively, but the rather slight differences between this species and Cassin's Sparrow were not very clearly set forth in the manual. Thus Mr. Worth is not so certain of the identity of his bird as he would like to be. His experience and directions, however, led me to the same area on August 26, during the course of some field work for the Academy of Natural Sciences of Philadelphia.

This area (Pl. X, fig. 1) was a wide salt prairie, perfectly flat, and covered with such low vegetation as salt grass (*Distichlis spicata*), sea lavender (*Limonium carolinianum*), sea oxeye (*Borrichia frutescens*), *Lycium carolinianum*, and *Monanthochloë littoralis*,¹ together with a few prickly pears (*Opuntia*) and small mesquite bushes. Near by was a recently constructed irrigation ditch. Otherwise the prairie was dry and parched in the intense heat of the summer sun. By beating back and forth over an area not more than half a mile square for a period of three hours, I managed to discover seven or eight sparrows and to secure five of them. One proved to be Cassin's, but the other four were Botteri's—three adult males and one adult female. The birds were quite shy and would seldom allow me to approach within fair range of a singing perch. Most of them had to be shot on the wing, after being flushed from the ground where they were feeding, so that I had the uncomfortable alternative of damaging them with No. 10's or risking a miss with the 'aux.' Although it was late in the season and young birds were full-grown, the males still sang occasionally in the bright heat, and somewhat more actively after a cooling shower. Here no natural singing perch was available more than two or

¹ Prof. A. S. Hitchcock and Dr. F. W. Pennell have kindly determined some of these plants.



HAUNTS OF BOTTERI'S SPARROW.

UPPER.—A SALT PRAIRIE ABOUT MIDWAY BETWEEN POINT ISABEL AND BROWNSVILLE, CAMERON CO., TEXAS. AUGUST 26, 1929.

LOWER.—A DRY SLIGHTLY ROLLING PRAIRIE, ABOUT SEVEN MILES NORTHWEST OF POINT ISABEL. AUGUST 29, 1929.



three feet high. For the most part the birds had to content themselves with a tuft of salt grass or a low mesquite bush, though one made use of an old fence stake about four feet high. I observed no such flight song as that given by its near relative, Cassin's Sparrow, which goes up on fluttering wings to a height of about ten feet and then returns to the same perch. But apparently at least one Botteri's Sparrow sang as it flew along in a direct course low over the salt grass.

The song is composed of clear, sweet notes, slightly canarylike in quality. It is exceedingly variable, and seems to be given scarcely twice alike in succession. It begins in a somewhat halting fashion, gradually increases to a trill, and often winds up with a few notes as slow as those at the beginning. One rendering that I put down goes as follows: *psit, psit, psitta, psitta, tseoo, tseoo, wit-wit-wit-wit-wit-t-t-t-t-t, tseoo, wit, wit*. The distance at which the song can be heard is probably at least 100, and possibly 200, yards. The call-note is like the beginning of the song: *psit, psit*, or *tsit, tsit*. Its similarity to the call-notes of the Pine-woods and Bachman's Sparrows is very marked.

Two days later, on August 28, I spent most of the morning in this same area, but found only two sparrows and secured neither. A mile away, however, I was attracted by the song to another small colony, where I found about five birds and secured three—two adult females and one immature female. This area was a slightly higher and drier prairie than the first, with a corresponding change in the vegetation. The mesquite bushes were taller and more numerous, there were more prickly pears, and a new element appeared in the shape of yuccas. There was still an abundance of salt grass, whose constant presence in the bird's habitats suggests that it may be at least locally an ecological requirement of the species. Here the birds fed over the ground, and when flushed, they generally flew to a mesquite bush.

On the following day more birds were found in two other localities, respectively six and seven miles northwest of Point Isabel. One of these (Pl. X, fig. 2) was quite similar to the last-described area; the other differed very little except in the presence of some narrow thickets of huisache. Each of five specimens secured on this day turned out to be a bird of the year. Several other indi-

viduals were noted, either singing or calling. Altogether, I have little hesitation in considering this species the commonest breeding sparrow (during 1929, at least) over a good many square miles of dry prairie country between Brownsville and Point Isabel.

The distance to which the birds fly on being flushed seems to have a direct relation to the kind of cover available. On the open salt prairie they generally go far, sometimes practically out of sight, before dropping down again into the low ground cover. On the drier prairies, where there are scattered groups of low mesquites, they alight in these bushes after a less protracted flight. Finally, wherever a huisache thicket adjoins their haunts among salt grass and other low prairie vegetation, they habitually seek refuge in the thicket, sometimes by a flight of only a few yards. In this last case they may be approached and collected with comparative ease. Experience in the past has probably given the species a greater sense of security from natural enemies in bushes or thickets than in the lower vegetation of the prairie; hence the less need of putting a great distance between themselves and their enemies when a thicket is used for cover.

The principal avian associates of Botteri's Sparrow on the open salt prairie were: Rio Grande Meadowlark, Cassin's Sparrow, Texas Horned Lark, Long-billed Curlew, and Bartramian Sandpiper. On the drier prairies, with a considerable shrubby growth of yuccas, prickly pears, and low mesquites, there were Cassin's and Black-throated Sparrows. In the huisache thickets were a considerable variety of birds, including Texas Sparrow, Texas Bobwhite, Vermilion Flycatcher, White-winged Dove, and such migrants as the Canadian and Yellow Warblers.

From the foregoing notes it would appear that the habits of Arizona birds differ somewhat from those of Texas birds. Contrary to Henshaw's experience, I found Botteri's Sparrow associating closely with Cassin's Sparrow. It occurred on the open prairies as well as among thickets, and generally at a very considerable distance from water. In Texas the trill, instead of forming the introductory part of the song, comes nearer the end than the beginning. As to the species in its Mexican range, practically no information on habits appears to be available, the literature consisting merely of taxonomic and distributional data.

Perhaps the best field character (aside from the song) for distinguishing Botteri's Sparrow from Cassin's Sparrow is its more buffy appearance, which can be detected even in flight. Another character, though not one for differentiating live birds, is its slightly greater weight. Three adult males averaged 22.5 grams; three adult females, 21.4 grams; three immature males, 21.9 grams; two immature females, 22.1 grams. The average weight of local specimens of Cassin's Sparrow was about 4 grams less.

There was very little variation in the colors of the 'soft parts' of adult and immature specimens of both sexes, as noted at the time of collecting. In general, they were as follows: maxilla dark olive, its tomium and the mandible plumbeous or horn color; iris olive-brown or light chocolate-brown; legs, toes, and nails brownish flesh color.

A tick (a nymph of *Ixodes* sp., as determined by Dr. H. E. Ewing) was collected from an adult female.

A few words may be added on the subject of taxonomy and nomenclature. The combination *Aimophila botterii botterii*, first proposed by Ridgway (1901, p. 257), was disregarded in the A. O. U. Check-List of 1910 in favor of *Peucaea botterii*. This use of a binomial, for which I have found no published explanation, would appear to indicate on the part of the Check-List Committee one or the other of the following opinions: (1) that the subspecies *sartorii* and *petenica* are invalid, or (2) that, even if the forms are valid, subspecific relationship with *botterii* has not been established. On the other hand, certain later authors (Phillips, 1911, p. 88; Bangs and Peters, 1928, p. 402) still employ Ridgway's nomenclature of 1901. Whether they do so merely as a matter of convenience, or because they believe that the generic distinctness of *Aimophila* and *Peucaea* can not be maintained, and that *botterii* is subspecifically related to *sartorii* or *petenica*, or to both, is not made clear.

At first glance the geographic relationship of *botterii* and *sartorii* might appear to argue for their specific distinctness. The Mexican range of the former extends from Sonora and Tamaulipas to Colima, Puebla, Vera Cruz, Oaxaca, and Chiapas. Not only does the latter's range extend through two of the same states (Vera Cruz and Chiapas), but its type locality at Huatusco, Vera Cruz, is only about 25 or 30 miles distant from the type locality of *botterii* near

Orizaba. In spite of this close geographical relationship, it is possible that the ranges of the two are quite distinct: *botterii* may be more or less exclusively a Lower Sonoran form, while *sartorii* may be confined to some subdivision of the Tropical Zone, such as the arid tropical deciduous forest. In that case the birds could be either specifically or merely subspecifically distinct. If their breeding ranges overlapped, they would necessarily be specifically (or not at all) distinct. Since Ridgway points out fairly decided differences between the two forms in both color and measurements, and since intergradation does not appear to have been established, a simple and perhaps logical course, pending further investigations, is to follow the A. O. U. Check-List of 1910 in employing a binomial designation.

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THE AGE OF THE SUPPOSED CRETACEOUS
BIRDS FROM NEW JERSEY.

BY ALEXANDER WETMORE.

AMONG the fossil birds of the North American list considerable interest has attached to a number of species named by Marsh many years ago from specimens obtained in the marl pits of New Jersey from what have long been supposed to be deposits of Cretaceous age. A recent paper by C. Wythe Cooke and Lloyd W. Stephenson¹ shows that part of the New Jersey marl deposits formerly considered Upper Cretaceous, namely the Hornerstown Marl, the Vincentown Sand, and the Manasquan Marl, in reality belong in the Eocene. The Navesink marl remains in the Cretaceous. In view of this information it is of importance to determine the strata from which the birds named by Marsh were obtained since on this will rest decision as to whether they are to be considered of Upper Cretaceous or of Eocene Age. In this matter the writer has been assisted by Dr. Cooke and Dr. Stephenson, and by Dr. Henry B. Kümmel, State Geologist of New Jersey, to whom thanks are due for information supplied that would not otherwise have been available. The species of birds concerned will now be considered in detail.

Graculavus velox Marsh² in the original description is said to have been "found by John G. Meirs, Esq., at Hornerstown, New Jersey, in the greensand of the upper Cretaceous." From information obtained from an account by Dr. G. R. Mansfield³ it appears that the marl pits worked many years ago near Hornerstown were in the Hornerstown marl, indicating that the specimen on which Marsh based his *Graculavus velox* came from these beds. As these have been shown to be of Eocene age then this bird is to be listed from the Eocene instead of the Upper Cretaceous as formerly.

To continue with other species from this locality *Graculavus*

¹ The Eocene age of the supposed late Upper Cretaceous greensand marls of New Jersey, Journ. Geol., vol. 36, February-March, 1928, pp. 139-148, 2 tables.

² *Graculavus velox* Marsh, Amer. Journ. Sci., ser. 3, vol. 3, 1872, p. 363.

³ Potash in the Greensands of New Jersey, U. S. Geol. Surv. Bull. 727, 1922, pp. 93-94, pl. 2.

pumilus Marsh¹ is said to come "from the same locality and geological horizon as the preceding [i. e. *Graculavus velox*], x x x also discovered by John G. Meirs, Esq."

The type of *Telmatornis priscus* Marsh² was "found in the Cretaceous greensand of the middle marl bed, in pits of the Cream Ridge Marl Company, near Hornerstown, New Jersey." Of *Telmatornis affinis* Marsh³ it is said in the original description that "these remains, also, were found by John G. Meirs, Esq., near Hornerstown, New Jersey, and by him presented to Yale College, in behalf of the Cream Ridge Marl Company."

Palaeotringa littoralis Marsh⁴ is "from the Cretaceous greensand of the middle marl bed. They were discovered by Nicholas Waln, Esq., in his marl pits, at Hornerstown, New Jersey."

Palaeotringa vagans Marsh⁵ was "discovered at Hornerstown, New Jersey, about ten feet below the surface of the marl, and was presented to the Yale Museum by John G. Meirs, Esq."

It is obvious from what Marsh says about the type locality of the species mentioned above that the remarks made under *Graculavus velox* apply likewise to these other forms from Hornerstown, and they also must be considered of Eocene age. This supposition is strengthened by the statement of Dr. Stephenson who informs me that according to Weller the "middle marl bed" mentioned under *Telmatornis priscus* and *Palaeotringa littoralis* is the Hornerstown marl.

Another species, *Laornis edwardsianus* Marsh⁶ was "found in the greensand of the upper, Cretaceous marl bed at Birmingham, New Jersey, in the pits of the Pemberton Marl Company and was presented to the Museum of Yale College by the Superintendent, J. C. Gaskill, Esq." Concerning this Dr. Henry B. Kümmel has kindly furnished the following information:

"The marl pit at Birmingham is located about a mile and a half west of the larger town of Pemberton, and is unquestionably the one of the Pemberton Marl Company of which Mr. J. C. Gaskill was Superintendent.

¹ *Graculavus pumilus* Marsh, Amer. Journ. Sci., ser. 3, vol. 3, 1872, p. 364.

² *Telmatornis priscus* Marsh, Amer. Journ. Sci., ser. 2, vol. 39, 1870, p. 210.

³ *Telmatornis affinis* Marsh, Amer. Journ. Sci., ser. 2, vol. 39, 1870, p. 211.

⁴ *Palaeotringa littoralis* Marsh, Amer. Journ. Sci., ser. 2, vol. 39, 1870, p. 208.

⁵ *Palaeotringa vagans*, Marsh, Amer. Journ. Sci., ser. 3, vol. 3, 1872, p. 365.

⁶ *Laornis edwardsianus* Marsh, Amer. Journ. Sci., ser. 2, vol. 39, 1870, p. 206.

"The basal portion of the marl bed at this point belongs to the Cretaceous (Navesink), as shown by the shell bed which borings have revealed. The workings, however, are not in the lower portion but in the upper part of the bed, and therefore I think the specimen should be referred to the Hornerstown. If we had exposed a complete section of the marl bed, we might be able to draw the line between the Cretaceous and the Eocene portions. I have not been able to do it on the basis of the one or two borings which have penetrated the entire thickness of the section at this point. Based on our present knowledge I believe we are correct in referring all fossils which have been obtained from the worked portion of this pit to the Eocene."

Palaeotringa vetus Marsh¹ was "found in the marl at Arneytown, New Jersey, which would imply that it was from the lowest Cretaceous marl bed." At Arneytown the geologic map shows a small area of Hornerstown marl capping a hill, overlying the Redbank sand, a Cretaceous formation. The Navesink marl is distant several miles so that here also it would seem that this species must be credited to the Hornerstown marl and therefore to the Eocene.

From what has been said above it is evident that all of the supposed Cretaceous birds of the New Jersey marl beds are in reality from Tertiary deposits since they appear to come from the Eocene. They will be so indicated in the list of fossil birds to be included in the fourth edition of the 'A. O. U. Check-List' now in course of preparation. With these forms allocated in the Eocene there is more logic in including them under families of birds with species existing today, procedure that to the writer has seemed dubious while they were considered of Cretaceous age since it is his present belief, based on what is known of the Hesperornithiformes and the Ichthyornithiformes, the only Cretaceous birds in which the skulls have been found, that all Cretaceous birds possessed teeth, and were for this and other reasons not so closely allied to living species as to permit their inclusion in living families.

U. S. National Museum.

¹ *Palaeotringa vetus* Marsh, Amer. Journ. Sci., ser. 2, vol. 39, 1870, p. 209.

AN ATTEMPT TO RESTORE THE CLIFF SWALLOW TO
NEW JERSEY.

BY B. S. BOWDISH.

At the eighteenth annual meeting of the New Jersey Audubon Society, October 2, 1928, its late Vice-President, W. De Witt Miller called attention to the great and apparently growing scarcity of the Cliff Swallow as a summer resident in the State. He considered modern barns offering poor support for nests and molestation by boys and others as possible factors contributing to decrease. Mr. Miller proposed a campaign by the Society, looking to increasing the summer resident Cliff Swallows in New Jersey, of which one feature should be the offering of prizes for the three largest nest colonies in the State during the summer of 1929. This suggestion was adopted and with the coming of early spring the plan was announced to the members of the Society through the Bulletin and made public through several news items sent to the press of New Jersey, New York City and Philadelphia.

There was no evidence that these announcements awakened any interest or attention on the part of barn owners. Such colonies as were located were reported by members of the Wyanokie Bird Census party or discovered during two trips of investigation. The first trip, July 6, was made by Mr. Miller, Dr. James P. Chapin and the author, to colonies whose general location had been reported by the Bird Census party. This included a colony of 90 nests at that date (originally 97), on the barn of Noble B. Rhinesmith, on a rural delivery route from Newfoundland; one of six nests on a barn belonging to Norman Decker, on a Butler delivery route; and a barn belonging to George C. Freeland, also on a Newfoundland delivery route, where a small number of Cliff Swallows were congregating, although no nests were observed.

Mr. Rhinesmith is interested in birds and has taken pains to make provisions for them. On a clayey bank a short distance from the barn, he plows several furrows each spring, making the best of Cliff Swallow nest material readily available. He reported that in 1927 the colony on his barn numbered 180 nests and was unable to offer any reason for the decrease. The nests on his barn, as

well as those of several other colonies, were built on a plate nailed to the ends of the rafters, offering a much more dependable support for them than the vertical side of the barn.

The second inspection trip was made by Mrs. Bowdish and the author, on July 18, in the Wanaque Reservoir region, and only a few miles from the places visited on July 6. It developed the following colonies: William H. Rhinesmith, R. F. D. No. 1, Midvale, evidence of 14 nests, several still intact (a son admitted that his father had knocked down nests, considering the birds a nuisance); John Traverso, R. F. D. No. 1, Midvale, evidence of 12 nests, mostly down, having apparently broken away from lack of sufficient support; George R. Stephens, R. F. D. No. 1, Midvale, 4 nests; Abraham Stephens, R. F. D. No. 1 Midvale, had had a colony of 40 or 50 nests, successfully occupied during early breeding, but mostly down on occasion of visit; Belcher Farm (part of Wanaque watershed property) in Midvale section, an old barn which is likely to be demolished showed traces of having had 90 nests, of which not more than one or two remained intact; Fred Ricker, R. F. D., Midvale, 25 nests.

At all places visited advantage was taken of the opportunity to make known the value of the Swallows as well as the chance of winning prizes in future years. Nailing strips a few inches below the eaves as supports for nests and readily available mud supply were advocated.

Prizes in gold were awarded at the annual meeting of the Society October 1; \$25 to Noble B. Rhinesmith; \$10 to Abraham Stephens and \$5 to Fred Ricker.

With the exception of a small colony reported near the North Caldwell aviation field and several unconfirmed reports of small colonies in Sussex County, it is possibly significant that all colonies located were in comparatively small area in Passaic County. The results of the campaign for its first year were considered encouraging and it was determined to continue it.

For anything like an accurate determination of the present status of the Cliff Swallow as a summer bird in New Jersey, a great deal of investigation of back-country territory would be necessary. To determine its former status and the period during which it has been decreasing, much more delving in literature would be required

than has been possible in preparing this paper. Queries addressed to a number of observers elicited the following: Mr. Charles H. Rogers states that he has not recently visited places where he knew of former colonies; that he remembers only four pairs on a barn between Crosswicks and Bordentown and a few west of Newton. In recent years the only breeding Cliff Swallows he has found were near the Delaware, a few miles above the Water Gap. He quotes Babson's 'Birds of Princeton' (1901) as follows: "Several years ago the Eave Swallow was a common summer resident, nesting in many places. As late as 1896 two pairs still bred at Gray's Mill, but since that time the species has occurred only as a migrant during May in spring, and in fall from August 10 to September 10." Mr. Rogers adds that at present the bird is a decidedly uncommon transient in spring about Princeton. He is not there at the time of fall migration.

Mr. Warren F. Eaton says that his notes on the bird in New Jersey are only since 1926 and as far as they go indicate that it is holding its own. For Wawayanda in 1926 he records two colonies containing 30 birds; Wyanokie, 1928, 110 pairs; 1929, 141 nests; Caldwell, 1928, 9 nests; 1929, 14 nests. These were among the colonies investigated by the Society, with the exception of the Caldwell site. Mr. Eaton indicates that about Montclair the Cliff Swallow has been observed only as a rather rare migrant.

Mr. Charles A. Urner says: "I do not know much about the Cliff Swallow in New Jersey. The Bird does not breed, so far as I know, in Union County. In 1927 we found no colonies about Delaware Water Gap; in 1928 a colony of 20 near Flatbrook Valley; in 1929 none south of Newton. Have never found it breeding in the Pine Barrens. I have no data of its increase or decrease. The bird is not very common as a migrant in Union County and never was."

Mr. Julian K. Potter writes: "The Cliff Swallow is so rare in southern New Jersey that I do not believe I have any more than a dozen records during past fifteen years. I know of no nesting records in southern part of State."

Warren's 'Birds of Pennsylvania' records this bird as a "common summer resident; generally distributed throughout the State" and says: "although I have known these birds to breed for three consecutive seasons under the eaves of long sheds in a cow-yard, I am

inclined to think that they usually breed but one year in the same place." No similar opinion has been found elsewhere. Stone's 'Birds of Eastern Pennsylvania and New Jersey' gives the Cliff Swallow as: "regular migrant but not very abundant, occurring mostly along the coast and river valleys; during the breeding season it is rare or local in southeastern Pennsylvania, but is more abundant in southern New Jersey—Cape May and Cumberland Counties (Reed and Wilde)." State Fish and Game Protector Charles A. Shriner's *Birds of New Jersey*, apparently based on the foregoing list by Stone gives the same status.

Stone's 'Birds of New Jersey' in the 1908 Annual Report of the New Jersey State Museum, says: "Tolerably common transient and summer resident, especially in the Pine Barrens. It is decidedly local and is generally reported to be less abundant than it was thirty or forty years ago. It nests at several localities in Cape May, Cumberland and Burlington Counties and nested near Princeton up until 1896 (Babson—*Birds of Princeton*, p. 67). At Plainfield, Mr. Miller reports a few nesting every year, while Mr. Hales (*Bird-Lore*, 1906 p. 173) reports it at Ridgewood, and Mr. Thurber at Morristown. Mr. S. N. Rhoads found it plentiful at Greenwood Lake and the Wallkill Valley, June, 1909. Mr. Crispin says it formerly bred at Salem." Griscom's 'Birds of the New York City Region,' states: "Breeding colonies formerly existed at numerous stations, but the bird is now extinct in all the places listed by Dr. Stone in 1910. Colonies still exist near Boonton (Miller), Newfoundland (Miller), south end of Greenwood Lake (Miller), Andover Junction (Griscom), the northeast end of Wawayanda Plateau (Griscom), and in a valley about half way between the Kittatinny Ridge and the Delaware River just west of Mashipacong (Griscom). . . . As a transient it is now uncommon and decreasing; fall records are particularly defective." A list of birds observed during a trip to Clinton and Potter Counties, Pennsylvania, June 21-28, 1900 (*Proceedings of Delaware Valley Ornithological Club*, 1901), records the Cliff Swallow as "decidedly the most abundant of the swallows, being noted not only in the farming country but also in the more recent clearings wherever there happened to be a few buildings." 'Cassinia' for 1902 reported: "The Cliff Swallow appears to be losing ground. Colonies were reported at Chestnut Hill (S.

Trotter) and Lansdowne (Wright), while four or five stations about Kennett Square have been deserted (Pennock) and other abandoned stations were mentioned at Lenape, Radnor and Wynnewood."

John D. Carter in *Summer Birds of Pocono Lake, Monroe County, Pennsylvania* (Cassinia, 1904): "The Cliff Swallow seemed to have a permanent place of abode under the eaves of a barn and the people of the farm were of the opinion that the swallows came regularly." Thomas D. Keim, *Summer Birds of Port Alleghany, McKean County, Pennsylvania* (Cassinia, 1904): "Cliff Swallow. Perhaps more abundant than the next species" (Barn Swallow). Cornelius Weygandt, *Summer Birds of Broadhead's Creek, Monroe County, Pennsylvania* (Cassinia, 1905) "Barns swallow-haunted with Barn Swallows within and Eave Swallows without. The Eave Swallows had several large colonies, both here in the valleys and high up the hills, but you found them on every third barn in the lowlands and only on every fifth barn in the uplands. One lowland barn had 51 nests, 44 on the southern side and 7 on the northern. There were young in some nests on June 16 and two months later found a few not yet flown. On August 17 there were hundreds of them on the telegraph wires and ridgepoles. After August 20 I saw none. Never saw as many Barn Swallows in any one place as Eave Swallows."

In 'Cassinia' for 1905 the Cliff Swallow is included in a list of "June Birds of Fulton County, Pennsylvania," by Witmer Stone and in the same volume E. Seymour Woodruff's "Summer Birds of Milford, Pike County, Pennsylvania," says: "Cliff Swallow. Common, the commonest of all the swallows." William L. Baily in "Breeding Birds of Passaic and Sussex Counties, New Jersey" (Cassinia, 1909), says: "Cliff Swallow. Abundant or common throughout." Then as now, that region would seem to have been about the best haunt of the Cliff Swallow in New Jersey.

If the efforts of the New Jersey Audubon Society shall aid two Cliff Swallows to grow where only one has grown before, they will not have been in vain.

Demarest, N. J.

THE BREEDING BIRDS OF PEKING AS RELATED TO THE
PALEARCTIC AND ORIENTAL LIFE REGIONS.(SHOWING THAT THE MARITIME PLAIN OF EAST CHINA BELONGS
NOT TO THE PALEARCTIC BUT TO THE ORIENTAL REGION.)

BY GEORGE D. WILDER.

It is thrill enough for any ornithologist simply to discover a new species breeding in his vicinity. But the finding of a new species breeding in the Peking area has all the delight of discovery with the added interest of having a bearing on a scientific problem. This problem is no less than that of a great change in a provisionally accepted boundary between two great life regions, the Palaearctic and the Oriental (embracing India, Burmah, Siam, Indo-China, South China, Malay Archipelago and the Philippines).

The great master of faunal geography, Alfred Russell Wallace, in his final work on the subject of 'The Geographical Distribution of Animals,' 1876, consciously left the problem unsolved. He frequently refers to the fact that the boundary between the Manchurian sub-region of the Palearctic and the Indo-Chinese sub-region of the Oriental region in east China is indefinite, provisional, and needed further study of the fauna of the territory involved. For instance on page 223, he says: "To give an accurate idea of the ornithology of this Manchurian sub-region is very difficult, both on account of its extreme richness and the impossibility of defining the limits between it and the Oriental region." Again, page 179, speaking of the countries of the Palearctic region including China and Japan, he says: "Their boundaries (between life zones) are often indefinable, and those here adopted have been fixed upon to some extent by considerations of convenience, dependent upon custom and upon the more or less imperfect knowledge we possess of some of the intervening countries."

Newton's 'Dictionary of Birds,' 1893, under "Geographical Distribution" says of China, "This is a branch of the subject in which it is as yet impossible to form an opinion."

These quotations show sufficiently that the question of this

boundary in the last century was left entirely open awaiting further study of the Chinese fauna and flora. The boundary has, however, been generally accepted as correct by authors.

Wallace depended upon the researches of two first class contemporary ornithologists, Swinhoe and David. They had listed 807 species for China but since then about 250 species and 490 subspecies have been added. For the province of Hopei, (formerly Chihli), in which Peking lies, these two men and von Möllendorff totalled 316 species in 1877. But now La Touche, Sowerby, Weigold, Hubbard and the writer, with the advantage of long years of residence in the province, have added some 100 species to the list for this, a critical province for the solution of the problem. Although much needs to be done still in the study of nesting habits and ranges the breeding range of many species has been more exactly determined, so that we are now in a much better position than was Wallace to give the argument from the birds for this boundary.

In the great work which we have quoted Wallace places the northern boundary of the Oriental region in Tibet at about 28° north latitude. From there eastward in southwest China it rises to 30° with two lobes extending northward, one at Moupin where David worked to about 34°. Thence it dips southeast across the Yangtzu River to a point northwest of Canton, at 24° and then rises to the northeast along the coastal ranges of mountains to 30° again on the seacoast below Shanghai at Ningpo. This excludes 700 miles of the middle and lower Yangtzu basin from the Oriental Region. From the China coast in the Yellow sea it dips south almost to Formosa at 26°.

Some Japanese ornithologists, notably Dr. Kuroda, are arguing for the continuance of the line from the China coast along the 30th parallel through their Amami Sea just south of Kiushiu Island where Nagasaki lies, thus pushing the boundary north in Japan by some four degrees. This helps to confirm the thesis of the present paper.

Our additions to the known breeding birds in Hopei indicate that this line on the China coast should be ten degrees farther north at 40°, the latitude of Peking and Shanhaikuan on the seashore. This is 16° deg. or over 1000 miles north of its lowest dip, above

Canton, according to Wallace. This throws all the great maritime plain of east China into the Oriental Region instead of the Palearctic. The temerity of the writer in suggesting so great a change is mitigated in that Wallace himself so clearly indicated the tentative nature of his boundary at this point.

How far up the Yangtzu river this new boundary should branch northeast from the old line we do not now attempt to decide by faunal proof but probably it should be from the point where the river debouches from the famous Yangtzu gorges above Ichang, only 600 feet above the sea. From there it would pass the eastern slopes of Tapaishan and the foot of the Tsingling, which Hartert recognizes as the limit of many species, and thence follow the foothills of the 5000 ft. mountains northeast to Peking on the 40th parallel, which it follows to the coast at Shanhaikuan. For the establishment of this line as the boundary we submit the following avifaunal evidence.

It is now commonly recognized that far flying migrants are not good indicators of faunal areas except strictly within their breeding range. Wallace himself offers a list of 15 genera which he says had been wrongly classified as Indian and therefore Oriental, because, though they do occur in India, it is only as winter visitors from the heights of the Himalaya Mts. In the light of this principle "the gradual merging" of Palearctic and Oriental forms in east China, which Wallace mentions, disappears. Owing partly to the predatory and omnipresent Magpie and Jungle Crow the breeding birds on the China plain are very few and are far outnumbered by the transients of spring and fall and the winter visitors. This fact may have misled Wallace into viewing this area as Palearctic owing to the absence of knowledge of the breeding habits and the range of many species. Swinhoe expressed his inability often to discriminate between native residents and birds of passage.

It is needless to point out why the breeding birds are far better indicators of life-zones than are transients. Suffice it to say that we restrict ourselves to the sedentary birds and the breeding areas only of migrants in this discussion of the birds as evidence of this boundary.

The province of Hopei is a critical region for this boundary, because it embraces the greatest natural life barrier north of Kuang-

tung province which is the definitely Oriental life region of south China. The coastal range of southeast China which Wallace recognized as the northern limit of the Oriental, is bounded on the north by the almost sea-level warm plain, characterized by rice-fields, water buffalo and bamboo. The Yangtzu River itself is no barrier even to hamsters, much less to the birds that we know; and the low divide between it and the Huai River offers no difficulty to southern species occupying to the north. Neither do the mountains of Shantung, 3000 feet elevation, oppose a barrier. Their historic military pass at Hsüchowfu, Kiangsu province, is out-flanked by rivers, marshes and plains to the west, that are difficult for armies but not for birds. From there north the Yellow river and Peiho basins form one plain to the mountains at the 40th parallel approximately, stretching from Shanhaikuan on the sea westward to Peking and thence southwest to the Yangtzu. This line is a real barrier for its southern side at Peking is the warm low plain, 50 ft. above sea level and the northern edge, 50 to 100 miles away is 6000 ft. above the sea on the cold Mongolian plateau. This line embraces some peaks 7000 to 10000 ft. high, as Hsiao Wu T'ai Shan. The climate of the Mongolian plateau north and west of this line is far colder and drier than that of the maritime plain. But northeast from Shanhaikuan lie maritime plains of South Manchuria similar to those of east China. An analysis of the breeding birds of the province exhibits the truth of the statement that these mountains on this line form a barrier far more formidable to breeding birds than any other in eastern China.

We have 130 species of birds that have been found breeding in the province, including a very few whose nests and young have not been found, but which remain all summer and which can hardly be classified as sexually immature or senile, as some waders and ducks seem to be. Of these 130 we find 65 to be cosmopolitan, breeding in both Oriental and Palaearctic Regions of no debate. We therefore exclude them from consideration. The remaining 65 are of prime significance to this boundary problem. These may be divided into three groups as follows:

- I. Permanent residents limited on the south by this line 20
 II. Migrants whose breeding range is limited on the south by
 this line 26
 III. Migrants and residents whose northern limit is this line . . . 19

—
 Total breeding birds of significance to the problem 65

We subjoin annotated lists of these three groups, the numbers in parenthesis referring to the numbers in the 'Tentative List of Chinese Birds' published by the Peking Society of Natural History, 1926-7.

I. PERMANENT RESIDENTS WHOSE SOUTHERN LIMIT IS THIS 40°
 LINE 20

With two or three exceptions these are all characteristic of the Palearctic.

1. (156) *Lyrurus tetrix ussuriensis* (Kohts). EASTERN BLACK GROUSE.—This occurs only in the extreme northern parts of the province at about 42° according to the statements of the dealers who sell it in Peking game markets occasionally.

2. (165) *Alectoris graeca pubescens* (Swinhoe). EASTERN RED-LEGGED PARTRIDGE.—This bird occurs down to the foot of the hills all along the line.

3. (167) *Perdix barbata barbata* Verreaux and Des Murs. DAURIAN OR BEARDED PARTRIDGE.

4. (185) *Crossoptilon manchuricum* Swinhoe. EARED PHEASANT.—Rare in Hopei; it is more common in the heavier forests of Shansi.

5. (190) *Pucrasia xanthospila xanthospila* Gray. NORTH CHINA PUCRAS PHEASANT.—This species occurs in pine forests northeast of Peking with allied subspecies to the north and west.

6. (195) *Syrnaticus reevesii* (Gray). REEVES' OR LONG-TAILED PHEASANT.—This fine pheasant occurs on our line like the last at the Eastern Tombs and west of it in isolated areas. It also occurs south in Kiangsi which may be an island of Palearctic terrain in the Oriental or the bird may be considered common to both regions like the Ring-neck Pheasant.

7. (280) *Ibidorhynchus struthersii* Vigors. IBIS-BILL.—This strange red-billed "curlew" in blue-gray, white and black, is mistakenly called a marker for the Oriental Region in Wallace's plate of Indian birds and animals. Its range falls north of our line from the seacoast to western Szechuan as a resident. Beddard has corrected Wallace's mistake by placing it in his Palearctic list.

8. (446) *Yungipicus kizuki wilderi* Kuroda. WILDER'S PYGMY WOODPECKER.—This subspecies is confined to the mountains northeast of

Peking but its related subspecies are found southeastward to the Island of Tsushima south of Korea, and to the northern Japanese Islands.

9. (452) *Dryocopus martius reichenowi* Kothe. EASTERN BLACK WOODPECKER.—Since the destruction of the Eastern Tombs forest this great Woodpecker has been seen on the plains near Peking but not farther south. It ranges west into Shansi and northeast into Siberia and Korea.

10. (511) *Pterorhinus davidi davidi* Swinhoe. DAVID'S HILL BABBLER.

11. (705a) *Laiscopus collaris erythropygius* (Swinhoe). RED-RUMPED ACCENTOR.—Our line is the southeastern limit except for an isolated hill region in Shantung.

12. (742) *Rhopophilus pekinensi* (Swinhoe). PEKING HILL BABBLER.—

13. (854) *Sitta europaea amurensis* Swinhoe. AMUR NUTHATCH.—Other races occur in the Fukien mountains and in Kiangsi, which are either to be considered as islands of Palearctic terrain or the species is common to both regions.

14. (855) *Sitta villosa* Verreaux. CHINESE GRAY NUTHATCH.

15. (888) *Corvus corax ussurianus* Taczanowski. MANCHURIAN RAVEN.

16. (903a) *Nucifraga caryocatactes interdictus* Kleinschmidt and Weigold. HOPEI NUTCRACKER.

17. (908) *Pyrhacorax pyrrhacorax* (L). CHOUGH.

18. (969) *Pyrhula cineracea* Cabanis (formerly *cassini*). GRAY-BACKED BULLFINCH.

19. (970) *Pyrhula pyrrhula griseiventris* Lafresnaye. ORIENTAL BULLFINCH.

20. (971a) *Pyrhula erythaca wilderi* Riley. HOPEI BULLFINCH.—*Pyrhula* is considered a Palearctic genus. One species, *P. nipalensis ricketti* La Touche, is recorded from Fukien and Kuangtung in the south.

With the exception of *Syrnaticus reevesii*, *Laiscopus collaris erythropygius* and *Sitta europaea*, as noted, these species are all unquestionably Palearctic and with the exception of these same they find their limit of southern range in east China exactly at the line mentioned.

II. MIGRANTS WHOSE BREEDING RANGE IS LIMITED ON THE SOUTH BY THIS 40° LINE. 26

Of this list the first thirteen are mountain and forest dwellers and so after crossing the plain on migration begin their breeding range in the mountains of this line and extend northward. One half, the second thirteen, are plain dwellers and begin their nesting in smaller numbers on the northern extremity of the plain at Peking,

or in the broad valleys to the northeast beyond Shanhaikuan but still approximately at the 40° line.

21. (143) *Butastur indicus* (Gmelin). GRAY-FACED BUZZARD EAGLE.—This bird breeds at both Eastern and Western Tombs near Peking but not south on the plain so far as we know.

22. (469) *Galerida cristata leautungensis* (Swinhoe). NORTH CHINA CRESTED LARK.

23. (478) *Anthus roseatus* Blyth. HIMALAYAN WATER PIPIT.—There is but one isolated mountain summit 10,000 ft. above the sea where we know of their breeding aside from southwest China and Tibet.

24. (485) *Dendronanthus indicus* (Gmelin). FOREST WAGTAIL.—The western and southern limit of breeding in Hopei is the hills west of Peking but it may breed also in southwest China and Kuangsi where it is recorded in August.

25. (648) *Monticola saxatilis* (L). WHITE-BACKED ROCK THRUSH.

26. (649) *Monticola gularis* (Swinhoe). WHITE-THROATED ROCK THRUSH.

27. (651) *Monticola philippensis philippensis* (Müller). RED-BELLIED ROCK THRUSH.

28. (708) *Prunella montanella* (Pallas). CHINESE MOUNTAIN ACCENTOR.—This is both resident and migrant in Northern Hopei.

29. (747) *Phragamaticola aëdon* (Pallas). THICK-BILLED WARBLER.

30. (803) *Ptyanoprogne rupestris* (Scopoli). CRAG MARTIN.

31. (830) *Lanius bucephalus* Temminck and Schlegel. BULL-HEADED SHRIKE.

32. (894) *Coloeus dauuricus dauuricus* (Pallas). DAURIAN JACKDAW. *Coloeus neglectus* (Schlegel). BLACK JACKDAW.—These are two forms of the same species.

33. (978) *Carpodacus pulcherrimus davidianus* Milne-Edwards. BEAUTIFUL ROSE FINCH.—Is found breeding on the top of Hsiao Wu Tai with *Anthus roseatus*.

The following thirteen species, with the exception of two or three as noted, begin their breeding range on the plain near the 40th degree.

34. (4) *Podiceps cristatus cristatus* (L.). GREAT CRESTED GREBE.

35. (7) *Podiceps nigricollis nigricollis* Brehm. BLACK-NECKED GREBE.—This is one of the species present in summer but nest not yet found.

36. (22) *Phalacrocorax carbo sinensis* (Shaw and Nodder). CHINESE CORMORANT.—It haunts the Peking Summer Palace lakes and the seashore in summer, but its breeding place has not been found in Hopei.

37. (30) *Egretta alba modesta* (Gray). EASTERN WHITE EGRET.

38. (73) *Anas platyrhynchos platyrhynchos* L. MALLARD.—Its rare occurrence in summer in pairs, is the only evidence of breeding on the plain, but it is common in Mongolia with other Ducks, Geese and Swans

39. (74) *Anas poecilorhyncha zonorhyncha* Swinhoe. YELLOW-NIB OR SWINHOE'S DUCK.

40. (85) *Nyroca ferina ferina* (L). POCHARD.—This bird has recently been discovered lingering in small numbers in the Peking lakes all summer and may breed here as its southern limit.

41. (104) *Falco vespertinus amurensis* Radde. EASTERN RED-LEGGED FALCON.—This exquisite little falcon breeds at intervals on the plain in Hopei and Shantung and probably still further south but in greater numbers farther north in Manchuria and Siberia.

42. (132) *Accipiter nisus nisosimilis* (Tickell). EASTERN SPARROW HAWK.

43. (292) *Sterna hirundo hirundo* L. COMMON TERN.—Although this is a cosmopolitan species we do not know of breeding records farther south than Hopei.

44. (416) *Micropus apus pekinensis* (Swinhoe). NORTH CHINA SWIFT.

45. (913) *Spodiopsar cineraceus* (Temminck). GRAY STARLING.

46. (916) *Agropsar sturninus* (Pallas). DAURIAN STARLET.

Having now listed 46 birds breeding on the Palearctic side of our line we turn to 19 southern birds which find their range entirely on the southern, or as we contend, the "Oriental Region" side of the line. Most of these seem to have been discovered in Hopei since the publications of Wallace or the researches of Swinhoe and David. All but four or five I consider to be definitely Indian, that is Oriental, region birds. Many of them have long been considered definite markers for the Oriental. This indicates the special significance of the following group in our problem. I simply append the list slightly annotated and omit the, to me, dramatic details of the discovery of some of the most important items of the list.

III. MIGRANTS AND RESIDENTS WHOSE NORTHERN LIMIT OF RANGE IS THIS 40° LINE. 19

47. (35) *Bubulcus ibis coromandus* (Boddaert). CATTLE EGRET.

48. (68) *Nettapus coromandelianus* (Gmelin). PYGMY GOOSE OR COTTON TEAL.—In July 1926 two pairs were repeatedly seen in the lakes of the Summer Palace where the bird finds warm fresh water with old trees and palace ruins in which it delights to nest as on the Yangtzu River where it is common.

49. (211) *Amaurornis phoenicurus chinensis* (Boddaert). CHINESE WHITE-BREASTED WATER HEN.—Common on the Yangtzu, it has been taken in summer twice in and near Peking.

50. (213) *Gallixrex cinerea* (Gmelin). WATER COCK.—This very secretive and crepuscular bird has been found to be a regular summer

visitor on the plain and even into the lower valleys of Manchuria beyond Shanhaikuan to the northeast.

51. (228a) *Charadrius alexandrinus dealbatus* (Swinhoe). KENTISH PLOVER.—This member of a cosmopolitan genus might well be disregarded but this particular species finds its farthest north in breeding range so far as we know, on the coasts of South Manchuria and Hopei. It belongs to temperate and warm coasts.

52. (284) *Hydrophasianus chirurgus* (Scopoli). WATER PHEASANT, OR JACANA.—Since the summer of 1916 both young and adult birds have been repeatedly seen and taken in the lakes and marshes of Peking and southward. One set of the beautifully polished chocolate colored eggs was collected in the drying bed of a lake in Peking. A mere depression in the mud lined with the decaying water plants in situ formed the nest. A brood of the young birds remained until Oct. 15th in 1924. It is common on the Yangtzu.

53. (339) *Streptopelia chinensis chinensis* (Scopoli). CHINESE SPOTTED-NECK DOVE.—This species finds its northern limit at Peking. Three other members of the Genus extend into south Manchuria, one of them, *S. orientalis*, into Siberia.

54. (341) *Streptopelia tranquebarica humilis* (Temminck). RUDDY TURTLE DOVE.—This dove recently discovered breeding at the Western Tombs, is also recorded in South Manchuria even to the Ussuri valley.

55. (374) *Ceryle lugubris guttulata* Stejneger. HIMALAYAN PIED KINGFISHER.—This Kingfisher has been found beginning to lay on the 5th of March at the southern extremity of the province in high Loess banks by warm streams that never freeze probably for many miles.

56. (379) *Halcyon pileata* (Boddaert). BLACK-CAPPED KINGFISHER.—This bird nests in banks at the Western Tombs and the Chinese who steal its young for pets say that it also nests in hollow trees.

57. (462) *Pitta nympha nympha* Temminck and Schlegel. BLUE-WINGED PITTA.—One specimen in the Peking market was said to have been taken in the reed beds near by. Others have been taken in Shantung, Anhui and Kiangsu to the south.

58. (607) *Xanthopygia elisae* (Weigold). ELIZA'S FLYCATCHER.—Thus far this bird has been found only by the describer and the writer, both finding it breeding in the limited area of oak forest in the Eastern Tombs at 40° north latitude.

59. (660) *Myiophonus coeruleus coeruleus* (Scopoli). WHISTLING WATER THRUSH.—Generally considered an Oriental region bird, it is only found in the deep wooded hills near clear streams in the mountains west of Peking.

60. (812a) *Volvocivora lugubris melanoptera* Rüppell. BLACK-WINGED CUCKOO-SHRIKE.—This Indian bird is fairly common in south China and north into Shansi, which may prove to be a lobe of Oriental territory. It has also been found twice near Peking on the plain.

61. (819a) *Chibia hottentotta brevirostris* (Cabanis). CHINESE HAIR-CRESTED DRONGO.

62. (864) *Pardaliparus venustulus venustulus* (Swinhoe). YELLOW-BELLIED TIT.

63. (892) *Corvus torquatus* Lesson. WHITE-NECKED CROW.

64. (897) *Urocissa erythrorhyncha erythrorhyncha* Boddaert. BLUE MAGPIE.—*U. e. brevirostris* Swinhoe was separated as a northern form but is not universally recognized. This genus said to be distinctive of the Oriental region we now know ranges from the Peking hills along this 40th parallel to Kansu up to 1650 meters above sea level, resident.

65. (1007) *Passer rutilans rutilans* Temminck. RUDDY SPARROW.—This is uncommon in Hopei, has not been found nesting and its range not well known, except that it is common in the southeast and into central China.

To sum up, of all the native breeding birds of this Hopei region, 46 are predominantly Palearctic and breed to the north from the 40° line. The 19 that breed south from this line are distinctly Oriental with only three or four exceptions, of species belonging to cosmopolitan genera, Nos. 51, 53, 58.

It should be noted that the area we have been considering is at the extreme north of the plain. A study of the Lower Yangtzu basin to the south will disclose many more birds of the Oriental region that enter the plain but do not reach the latitude of Peking.

We might observe that our contention for the extension north of the Oriental region by 1000 miles in east China makes the name Oriental much more appropriate.

Our attention is also called to a confirmatory feature of the climate on this coastal plain. The tropical rainy season advances up the coast as far as Peking where it begins about the first of July and continues usually from four to six weeks. Very little rain falls at any other part of the year. This is tropical rather than "Palearctic."

There are two striking confirmations of our thesis among the mammals. In the Eastern Tombs forest there is a thick-furred monkey, *Macachus tscheliensis* Milne-Edwards. This short-tailed macaque has been considered purely an Indian genus, but Pere David submitted specimens from the Eastern Tombs to Milne-Edwards for determination, the writer has seen a troop of fifty and the Chinese formerly caught them for training regularly in that region.

Planista gangetica is a porpoise discovered in the Ganges and

named from the fact that it was thought peculiar to that river. We have several specimens that were captured in the Yangtzu and in the West Lake where it is well known to the Chinese as the "River Pig."

These are confirmations among the mammals of what the birds have been bringing to our attention, that the Oriental avi-faunal region extends farther north along the China coast than had been supposed, and we shall expect further researches in the fauna and flora of the region to add to the evidence that most of eastern China is not Palaearctic but Oriental.

Peking, China.

SUBDIVISION OF THE SPECIES EMBERIZA RUSTICA
INTO GEOGRAPHICAL RACES.

BY LEONIDAS PORTENKO.

A STUDY of the specimens in the collection of the Zoological Museum, Academy of Sciences, U. S. S. R., has convinced me of the existence of at least two geographical races, i. e. subspecies, of the Rustic Bunting.

1. *Emberiza rustica rustica* Pall.

In Pallas's 'Reise durch verschiedene Provinzen des Russischen Reichs' St.-Pet., 1776, III, p. 698, occurs the following diagnosis: "Magnitudo Schaenici. Caput nigrum, fasciis tribus longitudinalibus albis, quarum una per medium verticem, laterales supra-oculares; gula quoque alba. Cervix humerique ferruginei; Dorsum passerini coloris. Subtus alba, jugulo punctis testaceis. Rectrices utrinque 2 extimae oblique albae." In the above quoted, original description of Pallas the only reference to the distribution of the species is as follows: "In salicetis Dauuriae jam Martio mense frequens." As the Rustic Bunting passes on migration from west to east and vice versa, it follows that the birds on passage met with in Dauria breed in the western portions of their range, and hence it may be assumed that the specimen described by Pallas was a migratory bird with a well marked stripe on the crown. This character would seem to denote a western specimen in which the crown is duller, being brown, not shining black, as in the eastern bird.

Description: Adult male.—Bill generally shorter, weak, with a narrower tip. From tip to anterior margin of nostril 77–84 mm. Wing 74–79 mm. Crown or "cap" brownish black, the feathers always bearing traces of buff on the edges, and tipped with white. Lores and ear coverts also tipped with whitish. On chin between rami of mandible there is very occasionally present a conspicuous tuft of black plumes, in most cases completely lacking. The bay tint of the crown depends upon the state of wear of the feathers,

but may be generally said to be of a more decided tone. Band across chest narrow, about 0.75 cm., its upper border sometimes marked with black, ill defined spots. Scapulars with very narrow median stripes. Bay streaks on flanks relatively not so well marked.

Female not so well distinguished. In most cases the bill is perceptibly weaker, band across chest narrower, markings on flanks fainter.

Juvenal birds are well characterised, being of a more vivid bay.

Range.—Breeding birds from the governments of Pskov, Leningrad, Olanets, Volagda and Archangel, as well as from the northern Ural (Telpos-is). This subspecies breeds likewise in the Altai. I having seen breeding birds from north-eastern Altai (divide between Kaizas and Kanzas, sources of the Klyk) in the collection of the late P. P. Sushkin. Breeding specimens from the Krasnoyarsk district and the upper course of the Lower Tunguska (in the Kirensk district of the Irkutsk got, the Okshi range) are preserved in the Academy collection; specimens of birds on migration from all parts of the breeding range referred to, and also from the Minusinsk district, Nizhneudinsk, Irkutsk, Kultuk on the Baikal and Kulusutaevsk. South of this zone the Rustic Bunting is very seldom met with either on migration, or as a straggler. To such belong specimens from the Crimea, Moscow government, Buzuluk district of Samara gvt., Sterlitamak district of Upa gvt., the neighborhood of Orenburg, Omsk, Turgai province (lake Ak-tasty-kul), Tashkent district and Kulja. The April specimens from the extensive collection of L. M. Shulpin from the Ussuri I could not always identify correctly on account of the moulting of the crown feathers. Apparently birds of the preceding year don a new cap in spring, but whether that is the case with all individuals and relates to both subspecies I am unable to say.

2. *Emberiza rustica latifascia* subsp. nova.

Emberizae rusticae typicae, quae per Europam borealem Sibiriamque occidentalem nidulat, simillima, sed rostra longiore, validiore, colore saturatiore distinguenda est. Mas vertice capitis, laris tectricibusque aurium saturatis nec et fuscente atris; inter ramus mandibulae pilorum fasciculo nigro; pectore fascia latiore, in margine superiore et nigrescente maculosa cincto; hypochondrius valde

striatis differt. A flumine Lena usque ad Kamtschatkam et insulas Aleuticas nidulatur. Terra typica: Kamtschatka.

Typus: ♂ near Kluchi in Kamchatka 12. VI. 1909.

Paratypus: ♀ near Kluchi in Kamchatka 2. VI. 1909.

Description.—Adult male in nuptial plumage. Bill longer with wider tip. From tip to anterior margin of nostril 81–92 mm. Wing 76–82 mm. Crown pure black with scarcely perceptible bluish sheen as in *Penthestes palustris*. Lares and ear coverts of the same pure black. A conspicuous white streak above and behind the eye, but never extending forward above the lares. Between the rami of the mandible occurs a small tuft of black hairlike plumes. The bay of the crown inclines to terracotta rather than to russet. Band across the breast distinctly wider, about 1.2 cm. Its upper border usually shows several blackish spots. Scapulars with wider median stripes. The flanks are much more distinctly marked, the streaks being wider.

Female, especially the crown, darker than the typical form. Band across the breast wider. Markings on flanks better developed. Tip of bill wider.

Juvenal birds darker as is well evidenced from a comparison of series of specimens.

Range.—Breeding specimens from Yakutsk district, regions of Verkhoyansk and Verkhne-Kolymsk, Kamchatka, and Bering, Copper, St. Paul and Aleutian Islands.

Migratory birds from Taishet, Irkutsk gvt., Olekminsk, Ayan, Amur Province, Ussuri land, South China and Tsaicham.

Birds with mixed characters, i. e. transitional between the two subspecies, obtained during migration from the upper course of the Middle Tunguzka (the Katanga), neighborhood of Olekminsk, Kultuk on the Baikal, and the Little Khingan.

Zool. Museum,

Academy of Sciences,

Leningrad, U. S. S. R.

THE HAWK QUESTION.

EDITORIAL AND CORRESPONDENCE.

UNLESS drastic measures are taken at once our Hawk and Eagle population will be a thing of the past; exterminated because *some* Hawks interfere with the raising of game birds for sportsmen to kill; and because *some* Eagles may occasionally kill lambs.

While some Hawks must be controlled—*i. e.* shot if actually engaged in killing young chickens or game birds; it is of the utmost importance that they be not exterminated. Some of these Hawks kill small insectivorous birds, it is true, but this has been going on for all time without occasioning any reduction in the numbers of the latter. It is nature's way of culling out the weaker individuals and keeping up the strength of the race.

These birds of prey are, moreover, nature's great check on the increase of harmful rodents and their extermination will be disastrous to farming interests.

They are also among the most interesting and picturesque birds of America, in which all birds lover take a deep interest. Do not the lovers of birds and the farmers have any rights in the matter?

1. We call on all bird lovers and farmers to enter into a campaign to instruct the public at large on the truth of this question on every opportunity, and to protest to the Game Commissions of their states against the encouragement of the promiscuous killing of Hawks which is now being given in many of their publications and in most sporting magazines. The enemies of these birds are active everywhere with propaganda and their attacks should be met promptly.

2. Read Mr. Sutton's paper in 'The Auk' for April, 1929, p. 190, and Mr. Quinn's 'Framing of the Birds of Prey' (which may be obtained from Davis Quinn, 3548 Tryon Ave., Bronx, New York City) which will give the facts in the case.

3. Try to induce sportsmen to warn the keepers on their game farms against indiscriminate killing of Marsh Hawks and other species which are mainly beneficial.

4. Write at once to your Congressmen and Senators in behalf of the 'Bald Eagle Protection Act' which has been introduced into both houses of Congress (see 'Notes and News,' beyond), but which will

have strenuous opposition. The Eagle problem is at the moment one of legislation; the Hawk problem of one education.

A few Hawks and Owls are injurious to young poultry and to young game birds but the majority are beneficial, yet no discrimination is exercised; in fact few of those who kill them are able to distinguish between the various species. Therefore none should be shot except when in the act of destroying game or poultry. This is not a matter of sentiment but a serious matter of economy for the farmer. Education was making satisfactory progress and the public was beginning to understand the facts in the case until the sportsmen, having reduced the stock of native game birds in many states to the vanishing point, were compelled to begin breeding game birds for shooting, as has long been done in England. This is a perfectly legitimate procedure but the game farms naturally attract Hawks that would not otherwise have proved troublesome and the managers of the game farms, desiring to make the best showing possible with their employers, shoot every Hawk that comes near. The mere presence of a Hawk in the neighborhood is not evidence that he is about to commit a crime. The game farms also attract mice and rats, and many Marsh Hawks come to catch these animals, their favorite prey, and not the young game, as has been shown in Mr. Stoddard's report on the Quail investigation.

Then the manufacturers of guns and ammunition encouraged Hawk killing wherever Hawks can be found in order to sell more of their products and shooting clubs urge field days for "vermin," as these birds are termed, as it makes good sport in the scarcity of legitimate game and may be practised in or out of season. Where great masses of Hawks pass in migration, as at Cape May, N. J. and Fishers Island, N. Y., thousands of Hawks are killed in the few weeks of the flight, birds which are doing no harm to anyone.

Now sportsmen are naturally interested mainly or entirely in game birds and when they are forced to the expense of maintaining game reservations and game farms they of course desire as much return for their money as possible. But they can protect the young game by various methods besides killing every Hawk that comes to the neighborhood (see *Farmer's Bulletin* 1613. U. S. Department of Agriculture, reviewed on p. 280), and the Hawk killer should

be cautioned to exercise discretion in the matter and learn to distinguish beneficial species from injurious ones.

On the other hand a vast and increasing body of citizens is interested in birds other than game birds including the birds of prey which are in many ways the most interesting and inspiring of all our wild species. Are they to have these birds exterminated because the sportsmen do not like them? The latter would not for a moment tolerate measures to exterminate the game birds if they interfered with the study of the birds of prey!

In an editorial note on this phase of the subject (Auk 1929) it was suggested that since all matters of bird legislation come before the state game commissions and since there are far more citizens interested in preserving birds of all kinds for watching and study than there are persons interested in preserving game birds for shooting, why should they not have equal representation on the Commissions, which are now made up, in practically every instance, entirely of sportsmen.

To this we have received the following encouraging reply from Mr. William C. Adams, Director of the Department of Conservation of Massachusetts:

Your proposition is entirely reasonable and our Division for one would be glad to have a highly trained ornithologist on it. There are many respects in which such a man could be of tremendous benefit to us in carrying on all our work.

I have often made the statement that I wish in our State we could divide it up into half a dozen zones and have a highly trained ornithologist in each one carry on a study through the entire year, and from year to year, of the wild life in his zone.

But when it comes to your proposition of equal representation—that carries with it equal financial responsibilities. As bearing on this point, it may interest you to know that in our State we consider the song and insectivorous and non-game birds just as much a part of our responsibility to protect as we do the game birds. But all the warden service which protects these birds, and all that we do in the way of artificial propagation, is financed out of an appropriation which is based entirely on the revenues from sporting licenses, fines and some small miscellaneous items—all of which are contributed by the anglers, hunters and trappers. I estimate that at least a million and a half of our people outside of those who hunt, fish and trap are interested in the protection and increase of our wild stock. Yet this portion of our population does not contribute one cent toward carrying on the work that the State does in the fields indicated above.

Furthermore, it is a strange thing but there seems to be no concerted

action on the part of this group of wild life lovers to aggressively insist on assuming any portion of the cost of the work.

I do not by this mean to infer that there is indifference to the welfare of the birds. This group, through the Massachusetts Audubon Society, the Federation of the Bird Clubs of New England, the Massachusetts Fish and Game Association, and local organizations have displayed a great deal of interest and made it possible for the State to own a group of small sanctuaries. But no funds have been appropriated so far to finance the operation of our larger sanctuaries (such as the Heath Hen Reservation on Marthas Vineyard and the Penikese Island Sanctuary) entirely independent of the appropriations which are based on the above revenues.

You men who are in a position to make an investigation along these lines will uncover some very interesting situations in the several states. I think you will find that more and more the tendency of state governments is to make these departments self-supporting by limiting appropriations to revenues from the above sources.

We believe that in every state if the rank and file of our nature lovers fully understood the situation they would insist upon larger appropriations and independent of those made to square revenues from sporting licenses, for the specific purpose of giving further protection to our non-game birds.

The whole matter can be stated another way—the maintenance of an abundant stock of desirable wild life in a given state has an aesthetic and economic value of the highest importance. Its presence ministers to the welfare of our people whether through the inspiration of study and observation or the health-giving recreation of pursuit. It should be ranked as one of our institutions and one of the basic favorable factors of our state and national life. As such the things that are done for its protection and increase should be financed out of the general tax levy, the same as other matters of equal importance. If and when a special license is required to exploit any portion of this wild life for recreational or economic purposes and to the extent that it is reduced to possession and certain property rights exercised with respect to it—such revenues should be expended for the especial benefit of those who contribute them.

I am greatly obliged to you for the discussions which may result from your suggestion. They will all help to clarify the situation.

With kindest regards, I am,

Very truly yours,

William C. Adams, Director.

We entirely agree with Mr. Adams that the whole financial burden of bird as well as game protection should not be charged up to hunting licenses and if the bird lovers are to have any representation on Game Commissions, as is imperative if Hawks and other non-game birds are to be saved, the individual bird student, the Audubon Societies and other Conservation organizations, should

make it their business to see that State appropriations are made for this purpose or that funds are supplied from other sources. As a start however let us strive for at least one ornithologist or conservationist on every State Game Board.

Along these same lines we have the following from Mr. B. S. Bowdish, Secretary of the New Jersey Audubon Society:

Our whole scheme of legal wild life conservation has its foundation and framework based on *game* conservation for the benefit of sport. Wild birds and mammals which had been arbitrarily classified as "game" were the first to so diminish as to call attention to the need for legal supervision, as well as the first to attract general and organized interest. As a result the first and to this day the basic conservation laws are *game* laws. Similarly, the legal department of each state for the enforcement of conservation was originally and still remains fundamentally, a *game* department.

The predominance thus given to "game" over non-game wild life receives further enhancement through the fact that a system of financing conservation law enforcement through hunting and fishing licenses has grown up into universal practice. The results of this basically lop-sided legal conservation must be obvious to any fair and open-minded observer and hardly need mention. Thus while there has been a very great and unquestioned improvement and development in the enforcement of general wild life conservation, there still persists an inclination toward bias favoring game for sport that is inevitable under present organization of legal conservation. This is most glaringly apparent wherever there is a real or fancied detrimental relationship of any other form of wild life to "game."

Is it not quite apparent, then, that there is an immediate and urgent need for a realignment of our consideration of the subject of wild life conservation on a more equitable basis and a reorganization of fish and game commissions into wild life commissions, on whose personnel at least one recognized ornithologist and one competent mammalogist would serve? And having admitted the logic of a wild life conservation all-embracing and not based on an arbitrary division into game and non-game wild life; having admitted that the theory of a proprietorship of the sportsman in game has no better basis than thoughtless tradition and practice, it becomes equally evident that when we have conservation for *all* wild life, for the benefit of *all* the people, it will be obviously unjust to tax only a part of the people for the maintenance of such general conservation. There will still remain the entirely reasonable argument that the sportsman who, for the enjoyment of his sport decimates game, may be required to pay for that privilege in order that he and his fellows, sportsmen and non-sportsmen, may still continue to have an abundance of game to enjoy, but some part of the funds for general wild life conservation should justly come from the general public, non-sportsmen as well as sportsmen.

There is, of course, no suggestion in this proposition, that in providing

general and equitable wild life conservation there should not be due thought given to the relationship that various forms bear to human interests, but it should be the broad and general interests and not the one-sided interests of a class which, numerous and well organized as it is, yet remains very much a minority of the whole people.

Only through united and organized action on the part of scientific naturalists and altruistic conservationists can such an improved and more equitable conservation of wild life be realized.

B. S. Bowdish

Demarest, N. J., November 3, 1929.

Just at present the most deplorable feature of the whole situation is the attitude of certain sportsmen and even ornithologists who, because their personal experience has brought them face to face with depredations by Hawks on poultry or game and who seem to ignore the careful scientific reports on the subject as a whole, rush into print with condemnations of all birds of prey, or certain species that have been proven more beneficial than harmful. Sporting magazines which think they are pleasing the majority of their readers, who are for the most part uninformed as to the actual facts, are only too glad to publish such articles.

A recent paper by Messrs. W. L. MacAtee and Herbert L. Stoddard of the U. S. Biological Survey (Condor, January 1930 p. 15.) in criticism of the various publications of Major Allan Brooks against the Marsh Hawk shows how carelessly most of such attacks are prepared and how misleading they may be to the public who are in possession of only part of the facts. For example Major Brooks is quoted as saying "We know it [the Marsh Hawk] to be the prime factor in the near-extirmination of one of our finest game-birds—the Heath Hen." The writers reply: "Who knows that? and how? Gross does not say so in his monograph 'The Heath Hen' nor does Forbush in his 'Birds of Massachusetts.' No, the statement is simply a lamentably loose one which comes as manna to gunners who are fanatical about birds of prey, but which is so surprising from an ornithologist of standing." In the same article Major Brooks is again quoted as saying that "Mr. Harry Ferguson of New York tells me that out of some score of Marsh Hawks sent to the Biological Survey from his estate the great majority were stuffed with Pheasants," but according to Messrs. MacAtee and Stoddard "249 Marsh Hawks from Fisher's Island were examined

and 34 (less than one eighth) had eaten Pheasants." Mr. MacAtee is in charge of the Food Habits Research in the Biological Survey and Mr. Stoddard of the Quail Breeding Investigations. The 'Condor' article should be read in full! But it is high time that the defenders of Hawks answer all such attacks as the above in the *magazines in which they appear* and present the facts for the benefit of an audience which is obviously misinformed. Mr. Manly Miner sends another account of the Marsh Hawk for publication in 'The Auk.' It is as follows:

Of late I have read in several magazines, articles regarding the Marsh Hawk, as well as eight or ten letters have come to father during the last few days on the subject, thus I want to give this experience which we had with Marsh Hawks last summer.

A neighbor, whose business is raising white leghorn chickens, called me on the telephone last summer and explained that "he was losing his young chickens very near as fast as he could put them out, and wanted me to come and investigate." Naturally the first thing that came to my mind was a weasel, but on visiting the place, weasel traps had been set already, and no signs of a weasel's work, but as it happened, while I stood there, over flew a marsh hawk. I at once said—"There is where your young leghorns are going." The farmer couldn't believe me, as he said he had read several articles telling him of how marsh hawks lived on mice, snakes and other reptiles, and even said "a government bulletin" (I don't know where from) "had told of how beneficial they were to the farmer." On investigating in a piece of land covered with short wild grass about a quarter mile away, we found the marsh hawk's nest, with young about two thirds grown, and for about two or three feet around nest the ground was covered with remnants of young white leghorns, a few pieces of mice skins, and remnants of a snake and craw fish—yet this poor farmer had been led to believe by various literature, not to kill the Marsh Hawk, and no doubt while he was in the house reading this, the marsh hawks were cleaning up on his broods of young leghorns.

Two years ago father had a brood of thirteen young quail and he started missing these young birds and before he killed Mr. Marsh Hawk the flock had been reduced to seven young birds, and when he did shoot this marsh hawk, it had a young quail in its claws.

During the months of May, June and July we have two or three hundred mourning doves' nests in our scotch pine grove, which is about fifteen to twenty feet in height. During these three months we always kill from ten to twenty Marsh Hawks, which come here and hover over the small grove where the young mourning doves are. These hawks are certainly not looking for field mice up in the top of these evergreen trees.

This winter the ground has from eight inches to a foot of snow. Along

fence rows where mice make their headquarters in the weeds, there is snow from four to six feet deep. Where are the mice? They are next to the ground where there is green vegetation. Thus, what are the marsh hawks living on in this locality? I can tell you—Juncos, Chicadees, English sparrows—other birds and an occasional mouse that comes out from under the snow.

Personally, I have never seen any Government literature of any country, either Canada or United States, which advocate protection of the Marsh Hawk, but if such is the case, I can't see how one department will liberate Pheasants, Quail or Partridge, while another department would publish any statements telling the farmer not to kill the Marsh Hawk, because these Marsh Hawks will eat young Pheasants, Quail or Partridge just as quickly as they will mice, if they can find them.

It is no doubt true that the months of August and September Marsh Hawks' chief diet is mice, because young game birds and other variety have pretty well matured. People who advocate protection of such hawks usually base their opinion on analyzing the stomachs, which is positive proof, but such analysis should be carried on every month of the year, on the same number of hawks each month because I am sure you would find more mice in their stomachs in the latter part of July, August and September, and early October.

Who hasn't watched Marsh Hawks by the hours flying low and darting over duck marshes? We all know there are no mice out in these marshes where water is growing wild rice and cat tails eight feet high, but instead of mice being out there, there are several varieties of small birds such as wrens, as well as young ducks during the spring season. Watch for yourself, and you very seldom see a marsh, but what there are Marsh Hawks hovering over same, and we all know there are no mice out there.

We all can't be too careful in saying what birds should be protected or killed,—it is a big study—in many cases circumstances decide the case.

MANLY MINER.

We agree absolutely with this final sentence. But as to there being no government literature advocating protection for the Marsh Hawk may we call attention to the following:

Dr. A. K. Fisher of the U. S. Biological Survey after an analysis of stomachs of birds taken in every month of the year says, "The Marsh Hawk is unquestionably one of the most beneficial as it is one of the most abundant of our hawks and its presence and increase should be encouraged in every way possible, not only by protecting it by law but by disseminating a knowledge of the benefit it confers." (Hawks and Owls of the U. S.)

The Canadian bird card issued by the National Museum of

Canada says of the Marsh Hawk: "As a mouser it is particularly efficient and mice form the mainstay of its diet throughout the year, but in early summer young ducklings and little upland game stray momentarily away from parental protection and a certain proportion of them serve the larder of the Marsh Hawk's nest, but without doubt the score for the species as a whole stands well in its favor."

In the Canadian 'Museum Bulletin' No. 28. P. A. Taverner says of the Marsh Hawk "It is a bird that is strictly beneficial and should have every protection." Many similar reports might be cited.

Mr. Miner does not seem to follow the advice given in his last sentence. He has evidently not looked into the literature and his statements on the food of the Marsh Hawks hovering over the marshes seem to be based on assumption and not on the painstaking investigations such as mark the work of the Government experts of Canada and the United States. Such loose statements are sadly misleading and are unfortunately all too common. Circumstantial evidence is never proof, nor has assumption any force when opposed to scientific investigation.

While we do not question the sincerity of Major Brooks and Mr. Miner we cannot understand how they are led to make such careless and misleading statements, or why they hold their comparatively limited experience against the carefully formed judgment of trained Government experts in economic ornithology. Surely, too, they must realize the importance to ornithology and to mankind in general of preserving birds of *all* kinds and recognize the possibility of *controlling* such Hawks as happen to destroy exposed young poultry or game without *exterminating* the species.

It has been demonstrated again and again that it is a difficult matter for man to improve upon nature and the extermination of any wild creature is a dangerous experiment. The game enthusiast does not realize the calamity that he is bringing upon the farmer by the extermination of Hawks until it is too late. Why cannot he accept the decisions of those best qualified to pass upon the matter?

Dr. Pearson president of the National Association of Audubon Societies in an editorial in 'Bird Lore' for January, 1930, has this

to say, "If a cherry tree is raided by a Robin, the owner of that cherry tree has the recognized fundamental right to protect his fruit, but he does not have the right to start shooting all the Robins of the neighborhood. The bird is of value to all agriculturists and gardeners of the community because of the great numbers of insects and caterpillars it destroys and such gardeners and agriculturists have property rights that the cherry-raiser must respect. If a Hawk catches a young Pheasant in a breeding enclosure, we may readily concur in the game keepers wish to dispose of the Hawk, but there are many who would not agree with the idea that the game keeper automatically has the right to make war on all Hawks found within the boundaries of the county or state." We have on more than one occasion criticised the use of the word 'vermin' as applied to Hawks and Dr. Pearson aptly defines the sportsmen's use of 'vermin' as designating "Any wild creature that kills something you want to kill!"

Now if it were not for inflammable articles inspired by prejudiced or uninformed persons and others whose business or living depends on making a good showing against 'vermin,' the sportsmen, farmers and ornithologists could easily get together as they always have in the past and save these splendid birds that add so much to the attractiveness of our wilder regions and are an inspiration to the artist and ornithologist.

The great majority of sportsmen are glad to abide by the results of scientific investigators and if they will coöperate by checking the careless and indiscriminate killing of Hawks on game farms and game preserves a great step will have been taken.

Bird lovers should take up the cudgels for the Hawks in the public press.

Do not write to 'The Auk' about it but make your appeal where it will reach those who do not know the facts.—W. S.

THE FORTY-SEVENTH STATED MEETING OF THE AMERICAN ORNITHOLOGISTS' UNION.

OCTOBER 21-24, 1929.

BY T. S. PALMER.

AFTER an interval of eight years the Union met for the seventh time in Philadelphia, where the attractions of the Academy of Natural Sciences and the general spirit of good fellowship surrounding that center of ornithological activity always insure a well attended convention.¹

Headquarters were at the Benjamin Franklin Hotel where ample accommodations were provided for the business meetings and for the annual dinner, but the public meetings were held as usual at the Academy. On account of the distance between the headquarters and the lecture hall, busses were provided each morning by the local committee to transport the members to the meetings, an arrangement that insured prompt arrival at the opening of the sessions.

Business Sessions.—The meetings on Monday included two sessions of the Council at 10 A. M. and 2 P. M., a meeting of the Fellows at 4 P. M., and a general meeting of the Fellows and Members at 8 P. M. At the meeting of the Fellows three of the vacancies

¹ It is not generally known that when the Union adjourned its first meeting in New York in 1883 it intended to meet the following year at Philadelphia. Conditions, however, were not favorable and sixteen years passed before a Philadelphia meeting became a reality. Each of the six meetings in that city were marked by special incidents or outings which left lasting impressions on the minds of those fortunate enough to attend:

1899,—Presence of Dr. S. W. Woodhouse; outing to Audubon's home at Mill Grove.

1903,—Resolution of thanks to Dr. J. A. Allen for 20 years service as Editor of 'The Auk.' Dwight's characteristic paper on 'The Exaltation of the Subspecies,' in which synonymy was defined as 'the science of the blunders of our predecessors.'

1907,—Celebration of the 25th anniversary of the Union; visits to Bartram's Garden and Mill Grove.

1911,—Resignation of J. A. Allen and election of Witmer Stone as Editor of 'The Auk'; reception at the home of William L. Bally at Ardmore.

1916,—Visits to the Pine Barrens of New Jersey and to Fatland Ford, Mrs. Audubon's early home.

1921,—First award of the Brewster Medal; exhibit of historic manuscripts and the Jeanes' collection of early Audubon drawings; outing to the Pine Barrens of New Jersey.

in the list were filled by the election of Mrs. Vernon Bailey, Dr. Thomas Barbour and Dr. Herbert Friedmann. Mrs. Bailey has the distinction of being not only the first woman elected to the class of Fellows but also the first woman elected as an Associate of the Union.

At the evening meeting 23 Fellows and 27 Members were present. The report of the Secretary was presented showing a total membership of 1858; the Treasurer reported receipts of \$9,031.28 and disbursements of \$6,826.63 leaving a balance of \$2,204.65; and the report of the Investment Trustees showed permanent funds of the Union amounting to \$30,523.04, including \$7,250 in the Brewster Memorial Fund. Five Members were elected from the class of Associates and on recommendation of the Council one Corresponding Fellow and 231 Associates were elected.

The Brewster Memorial Medal for 1929, awarded biennially for the most important work relating to the birds of the Western Hemisphere published during the preceding six years, was awarded to Dr. Carl Eduard Hellmayr of the Field Museum of Natural History of Chicago for his continuation of Cory's 'Catalogue of Birds of the Americas.'

The general business transacted included acceptance of an offer from the Audubon Society of Pennsylvania of approximately \$2,500 to be invested as a fund for bird protection, the interest to be used by the Committee on Bird Protection; authorization of the Ridgway Memorial Committee to transfer all funds and pledges thus far collected to the Trustees of the Ridgway Bird Haven Association; designation of the Girard Trust Company of Philadelphia as custodian of the funded property of the Union; appropriation for the publication of the 'Check List of North American Birds' expected to be issued during the year; authorization for appointment of a committee to prepare a 'Ten Year Index of the Auk' for 1921-1930; and assistance in publication of 'Aves' of the 'Zoological Record'. The transfer of funds of the Ridgway Memorial Committee was authorized on the understanding that an offer made by Mrs. Frances K. Hutchinson to complete the fund of \$50,000 and to insure the permanent care of Bird Haven through an organization to be founded for the purpose and incorporated under the laws of the State of Illinois would be carried out.

Resolutions were adopted expressing the thanks of the Union to Mrs. Hutchinson and to the Ridgway Memorial Committee and also to the Director and Trustees of the Academy of Natural Sciences, the Zoological Society of Philadelphia, the Chamber of Commerce of Cape May and several individuals for courtesies extended during the meeting. Resolutions were also adopted endorsing the project of a proposed Tropic Everglades National Park in Florida, and recommending to the Canadian Minister of Marine that steps be taken to reduce the destruction of bird life at Long Point Light House on Lake Erie in the Province of Ontario.

Public Sessions.—The regular sessions were held in the Lecture Hall of the Academy October 22, (10 A. M. to 12 M.) 23 and 24 (9.30 A. M. to 5.30 P. M). The technical sessions on Wednesday and Thursday mornings were held in the Mineralogical Room. The program as in several previous meetings required simultaneous sessions on Wednesdays and Thursdays but of the sixty papers only three, due to absence of the authors, were read by title.

The sessions opened with a brief address of welcome by Mr. Effingham Morris, President of the Academy of Natural Sciences, and a response in behalf of the Union by the Secretary. The program was arranged to reflect some of the more important activities of the members of the Union in the field, in the museum or laboratory, and in the library. Reports of recent field work included accounts of birds observed on Baffin Island, in the West Indies, Venezuela, Great Britain, Indo-China and New Guinea. The general and technical programs were varied, with papers on distribution, life histories, migration, song, bird banding and nomenclature, while the activities of former Fellows of the Union were reviewed in memorials of Dwight, Forbush, Lawrence, Lucas and Ridgway. From the field the outstanding report was J. Dewey Soper's account of the 'Discovery of the Breeding Grounds of the Blue Goose' on the Kungovik River, near Bowman Bay, east of Foxe Peninsula, in the southwestern part of Baffin Island. This was preceded by S. C. Palmer's 'Observations on Bird Life on Baffin Island and Labrador.' Chapman's 'Bird Life of Mts. Roraima and Duida,' Wetmore's 'Remarks on the Avifauna of Haiti and the Dominican Republic,' and Bond's 'Birds of the Windward Islands' gave vivid accounts of the bird life in tropical

America; while de Schauensee's report on the recent Expedition of the Academy of Natural Sciences to Siam, Van Tyne's account of 'The Ornithological Work of the Kelley-Roosevelt Expedition to Indo-China,' and Crandall's 'Collecting Living Birds of Paradise in New Guinea' brought out some of the thrills and difficulties of collecting in the tropics of the Orient. Coming nearer home Harper reported the 'Rediscovery of Botteri's Sparrow in the United States,' Stone described the 'Roosting of Purple Martins and White Herons' and Huber 'Some Nesting Colonies of Gulls, Terns and Skimmers in the vicinity of Cape May, N. J.', while Packard reported on a 'Preliminary Survey of the Cliff Swallow in Massachusetts' and Bowditch an attempt to restore the same species as a breeding bird in New Jersey. Du Mont presented a unique paper on the use of 'Bird Skins and Feathers by American Indians' based on 86 species of birds which he had identified in the Indian exhibits in the American Museum of Natural History and the Museum of the American Indian Heye Foundation.

It would be difficult to improve on such careful studies of life histories as Arthur A. Allen's 'Courtship of the Ruffed Grouse' and 'Home Life of the Marsh Hawk,' Gross' 'Prairie Chicken of the Wisconsin Prairies,' or the detailed studies of the Robin by McClintock, of the Bald Eagle by Herrick or of the House Wren conducted at the Baldwin Bird Research Laboratory by Kendeigh and Worley, all of which must be seen or read to be fully appreciated.

Among the more technical topics the outstanding contributions were Chapman's 'Speculations on the Colors of Tropical Birds,' Austin's 'Distribution and Origin of the Races of the Canada Jay,' Friedmann's 'Significance of Size Variations in Birds,' Chapin's 'Geographic Races and Evolution in Birds,' and Murphy's 'Problems in Island Races and Species.' Chapman divided tropical birds into three groups, those which inhabit the tree tops, those lower down and those on the ground. The whole range of color may be found in the tree tops, bright colors being associated with bright lights, while birds on the forest floor are dull and protectively colored. Austin recognized seven races of the Canada Jay and discussed them from the standpoint of their origin and geographic ranges. Friedmann stated that in the case of African and South

American birds about 75% of the members of a given species were larger when living in a cooler latitude or at a greater altitude; exceptions to the rule however are afforded by the African Barbets which are usually larger close to the equator. Chapin discussed the origin of species as set forth by Kleinschmidt and Rensch, agreeing with the former that many species arise through isolation of geographic races, but disagreeing with Rensch's explanation that they are due almost entirely to the direct effect of environment. He indicated that isolation is more potent than environment and slight mutational characters are of more importance than the influence of climate. Murphy continued the discussion by maintaining that no close relationship could be shown between the climate of islands and the differentiated characters of the races found on them. He held that mutation was undoubtedly the most important factor and since the homing instinct in some birds was known to be a mutation character, loss of this instinct might favor colonization of a new island by mutant individuals of the species. Among other technical subjects Dr. Cram described an investigation of the life history of stomach worms of swine whose intermediate hosts are dung beetles. These in turn are eaten by shrikes and several other species of birds. The worms then become encysted in the walls of the digestive tract of the birds and in this way do no great damage so that the birds actually furnish considerable protection to swine.

Dr. Wilder discussed the distribution of birds in China in relation to the proper line of demarcation between the Palearctic and Oriental regions. Hartert and others have usually regarded the Palearctic as extending south to the vicinity of Canton but Dr. Wilder showed that many typical birds of the Oriental region nest as far north as Peiping (Pekin) and that while many Palearctic birds migrate south through China very few actually breed south of Peiping. He therefore preferred to regard the mountains marking the edge of the plateau north of Peiping as the boundary, thereby restricting the Palaearctic region in China to the western highlands and the northern part of the country. Among other papers were Shaver and Watkins' 'Study of the Effects of Temperatures on the Time of Ending of the Evening Song of the Mockingbird,' Wetmore's 'Fossil Birds of the A. O. U. Check-List,' and

Grinnell's 'Angles in the Problem of Bird Migration,' which can be merely mentioned here but which it is hoped will be published soon and thus become generally available. Under the title 'Echoes of 1883' the Secretary exhibited an original manuscript of William Brewster containing notes of the early meetings of the first Check List Committee and explaining how agreements were finally reached regarding limits of genera, inclusion of Lower California, recognition of subspecies and other controversial points on which there was a wide difference of opinion among the members.

Exhibits.—In the Library of the Academy was installed an exhibit of the publications, portraits and autographs of the principal Philadelphia ornithologists from William Bartram, Alexander Wilson, and George Ord down to date. Here could be seen the first edition of 'Wilson's Ornithology' and that rarest of all official publications on birds, the original edition of Peale's 'Report on the Ornithology of the Wilkes' Exploring Expedition,' Vol. VIII, 1848, of which only a few copies are known. In an adjoining case was an exhibit showing the relation of the Academy of Natural Sciences to ornithology, comprising lists of former Members of the Academy who were associated with the history of ornithology, and of ornithologists who were Corresponding Members of the Academy. In the hall near the entrance to the lecture room were installed in charge of a demonstrator several electrical instruments used at the Baldwin Bird Research Laboratory in maintaining a continuous record of the temperature in Wrens' nests and also in making audible the heart beat and respiration of birds (see papers 25 and 48).

Social features. The social events began with a luncheon on Monday tendered to the Council by J. Fletcher Street and Richard Erskine at the Art Club and a dinner to the Fellows given by Dr. Stone at the Franklin Inn Club. On Tuesday a recess was taken in the regular program at noon and the members of the Union and their friends repaired to the Zoological Gardens at Girard Avenue and 34th Street where they were entertained at luncheon as guests of the Zoological Society and later were shown the wonderful collection of Birds of Paradise and other species in the Bird House under the guidance of Director Brown and members of the local committee. The weather which had been threatening all the

morning settled into a steady downpour about noon but thanks to the arrangements of the committee the members were transferred in busses from the Academy to the Zoo with a minimum of discomfort, and later in the afternoon were taken back to the hotel. Although the inclement weather prevented a general tour of the Gardens and kept most of the members indoors it resulted in a more careful examination of the collection in the Bird House than would otherwise have been possible.

The annual dinner on Wednesday at the Benjamin Franklin Hotel was largely attended and was a highly successful affair. The evening entertainment included a series of motion pictures, taken, shown and explained by J. Fletcher Street clearly illustrating present day bird life on the New Jersey Coast and the probable avifauna in the same locality in the time of primitive man, as well as the methods of hunting in those early days. Many of the species depicted are not to be found even in our lists of fossil birds!

On Friday the members and their guests numbering about 160 left at 8.30 a. m. on the Reading Railroad by special train, for Cape May, N. J. On arrival at its destination the party was met by a reception committee representing the Chamber of Commerce and citizens of Cape May, and a number of the visitors were driven to places of local interest and then to Cape May Point, a distance of about two miles. Here they were joined by the other members of the party who walked down the beach and a box luncheon was served by the local committee at the cottage of Mr. and Mrs. Jerome Ferriss, who kindly opened their summer home for the purpose. After luncheon, time was allowed for rambling through the woods before returning to Cape May to take the train. As a result of the combined observations of the members the list of birds seen numbered 98 species, including the Parasitic Jaeger and Short-billed Marsh Wren. On Saturday a few of the members drove to Mill Grove and Fatland Ford the early homes of Audubon and Lucy Bakewell. The Audubon home at Mill Grove has been somewhat modernized and is in good condition but the old mill has entirely disappeared.

Invitations for the next annual meeting were received from a number of cities, especially Detroit and Cincinnati which in addition to personal representatives sent letters from the Mayor,

Chamber of Commerce, Board of Trade and other organizations. After careful consideration of the various invitations the Union voted to hold the annual meeting in 1930 at the Peabody Museum in Salem, Mass., the second oldest museum in the United States, at a time to be fixed by the Local Committee on Arrangements.

THE PROGRAM.¹

(Papers are arranged in the order in which they were presented at the meeting. Those marked with an asterisk (*) were illustrated by lantern slides.)

TUESDAY MORNING.

Welcome by EFFINGHAM B. MORRIS, President of the Academy of Natural Sciences of Philadelphia.

Response on behalf of the Union, by the Secretary.

Roll Call of Fellows and Members, Report of the Business Meeting, Announcement of the Result of Elections.

1. Some Speculations on the Colors of Tropical Birds. FRANK M. CHAPMAN, American Museum of Natural History, New York. 20 min.)
2. In Memoriam: Robert Ridgway, 1850-1929. CHARLES W. RICHMOND, U. S. National Museum, Washington, D. C. (Read by title.)
3. In Memoriam: Edward Howe Forbush, 1858-1929. T. GILBERT PEARSON, National Association of Audubon Societies, New York. (20 min.)
4. British Birds at a Glance. BAYARD H. CHRISTY, Sewickley, Pa. (20 min.)
5. The Destruction of Birds on Four Nights at Long Point Lighthouse, Ont. WILLIAM E. SAUNDERS, London, Ont. (10 min.)
6. Voices of the Night. MRS. ETTA S. WILSON, Detroit, Mich. (5 min.)
7. In Memoriam: Jonathan Dwight, 1858-1929. JAMES H. FLEMING, Royal Ontario Museum, Toronto, Ont. (15 min.)
8. Birds of Paradise on Exhibition in the United States. T. S. PALMER, Biological Survey, Washington, D. C. (15 min.)

WEDNESDAY MORNING—GENERAL SESSION.

9. Birds of the Windward Islands, B. W. I. JAMES BOND, Academy of Natural Sciences, Philadelphia, Pa. (15 min.)

¹ Several of the papers have been published since the meeting, viz., Nos. 4, 7, 10 and 22 in 'The Auk' for Jan., 1930; No. 18 under the title 'Suggestions for a Revised Bird Banding Terminology' in 'Bird Banding,' I, pp. 14-19; No. 24 in 'The Condor,' Jan., 1930, pp. 12-14; No. 34 in the 'Canadian Field Naturalist,' Jan. 1930, pp. 1-11; No. 36 in 'Bird Lore,' Dec., 1929, pp. 383-393; and No. 54 in 'Bull. N. Y. Zool. Soc.' Dec., 1929, pp. 215-256.

10. In Memoriam: Newbold Trotter Lawrence. MAUNSELL S. CROSBY, Rhinebeck, N. Y. (10 min.)
11. Some Observations on the Use of Bird Skins and Feathers by the American Indians. PHILIP A. DU MONT, American Museum of Natural History, New York. (15 min.)
12. Experiences with Fuertes in Florida. ALDEN H. HADLEY, National Association of Audubon Societies, New York. (15 min.)
13. The Voice of the Double-crested Cormorant. HARRISON F. LEWIS, Canadian National Parks, Ottawa, Can. (10 min.)
14. *A Preliminary Study of the Effects of Temperature on the Time of Ending of the Evening Song of the Mockingbird. JESSE M. SHAVER AND GLADYS WALKER, Peabody College, Nashville, Tenn. (20 min.)
15. *Growth Rate of Spotted Sandpiper Chicks, with Notes on Nesting Habits. THEODORA NELSON, Brooklyn Hunter College, Brooklyn, N. Y. (30 min.)
16. A Preliminary Survey of the Cliff Swallow in Massachusetts. WINTHROP PACKARD, Massachusetts Audubon Society, Boston, Mass. (10 min.)
17. An Attempt to Restore the Cliff Swallow to New Jersey. BEECHER S. BOWDISH, Audubon Society of New Jersey, Demarest, N. J. (15 min.)
18. Some Theories Regarding Returns of Banded Birds. MRS. JOHN A. GILLESPIE, Glenolden, Pa. (10 min.)
19. Bird Mortality on the Highways. ALBERT R. SHADLE, Buffalo, N. Y. (Read by title.)
20. *Methods in a Bird Laboratory. S. PRENTISS BALDWIN, Baldwin Bird Research Laboratory, Cleveland, O. (15 min.)
21. In Memoriam: Frederic Augustus Lucas, 1852-1929. CHARLES H. TOWNSEND, New York Aquarium, New York. (Read by title.)

WEDNESDAY MORNING—TECHNICAL SESSION.

22. Remarks on a Few Unrecognized Florida Subspecies. ARTHUR H. HOWELL, Biological Survey, Washington, D. C. (20 min.)
23. Comments on the Systematics of Some Western Birds. JOSEPH GRINNELL, Museum of Vertebrate Zoology, Berkeley, Calif. (15 min.)
24. *The Fossil Birds of the A. O. U. Check List. ALEXANDER WETMORE, Smithsonian Institution, Washington, D. C. (10 min.)
25. *Physiology of Bird Temperatures. S. CHARLES KENDEIGH, Baldwin Bird Research Laboratory, Cleveland, O. (20 min.)
26. *Sexual Differentiation in the Plumage of the Black-bellied Plover. LESTER L. SNYDER, Royal Ontario Museum, Toronto, Ont. (10 min.)
27. A Study of the Tooth-billed Red Tanager (*Piranga flava*) of Brazil.

JOHN T. ZIMMER, Field Museum of Natural History, Chicago, Ill.
(20 min.)

28. Observations on the Significance of Size Variations in Birds. HERBERT FRIEDMANN, U. S. National Museum, Washington, D. C. (20 min.)
29. Geographic Races and Evolution in Birds. JAMES P. CHAPIN, American Museum of Natural History, New York. (30 min.)
30. Certain Evolutionary Problems in Island Races and Species. ROBERT CUSHMAN MURPHY, American Museum of Natural History, New York. (30 min.)

WEDNESDAY AFTERNOON—RECENT EXPEDITIONS.

31. *Remarks on the Avifauna of Haiti and the Dominican Republic. ALEXANDER WETMORE, Smithsonian Institution, Washington, D. C. (20 min.)
32. *Bird Life of Mts. Roraima and Duida. FRANK M. CHAPMAN, American Museum of Natural History, New York. (30 min.)
33. Observations of Bird Life on Baffin Island and in Labrador. SAMUEL C. PALMER, Swarthmore College, Swarthmore, Pa. (30 min.)
34. *Discovery of the Breeding Grounds of the Blue Goose. J. DEWEY SOPER, Dept. of the Interior, Ottawa, Can. (20 min.)
35. *The Ornithological Work of the Kelley-Roosevelt Expedition to Indo-China. JOSSELYN VAN TYNE, University of Michigan, Ann Arbor, Mich. (30 min.)
36. *The Prairie Chicken of the Wisconsin Prairies. ALFRED O. GROSS, Bowdoin College, Brunswick, Me. (30 min.)

THURSDAY MORNING—GENERAL SESSION.

37. Angles in the Problem of Bird Migration. JOSEPH GRINNELL, Museum of Vertebrate Zoology, Berkeley, Calif. (25 min.)
38. Waves in Bird Migration. C. W. G. EIFRIG, River Forest, Ill. (20 min.)
39. The Migratory Status of the Mourning Dove. FREDERICK C. LINCOLN, Biological Survey, Washington, D. C. (10 min.)
40. The Roosting of Purple Martins and White Herons at Cape May. WITMER STONE, Academy of Natural Sciences, Philadelphia, Pa. (20 min.)
41. Conservation of Waterfowl. HARRY C. OBERHOLSER, Biological Survey, Washington, D. C. (20 min.)
42. Field Marks of Our Shore Birds. LUDLOW GRISCOM, Museum of Comparative Zoology, Cambridge, Mass. (30 min.)
43. Echoes of 1883: How the First Check List Came to Be. T. S. PALMER. Biological Survey, Washington, D. C. (10 min.)
44. The Territorial Difficulties of Two Pairs of Song Sparrows. MRS. MARGARET M. NICE, Columbus, O. (20 min.)
45. Observations at Nests of a Pair of Song Sparrows. DORIS W. HALDEMAN, Philadelphia, Pa. (20 min.)

THURSDAY MORNING—TECHNICAL SESSION.

46. Birds as a Factor in the Control of the Stomach Worm of Swine. ELOISE B. CRAM, Bureau of Animal Industry, Washington, D. C. (15 min.)
47. A New Factor in the Destruction of Migratory Birds at Charleston, S. C. ALEXANDER SPRUNT, JR., Charleston Museum, Charleston, S. C. (10 min.)
48. *Secondary Sexual Characters in the House Wren. LEONARD G. WORLEY, Baldwin Bird Research Laboratory, Cleveland, O. (20 min.)
49. Breeding Birds of Pekin as Related to the Palaearctic and Oriental Life Regions. GEORGE D. WILDER, Pekin, China. (20 min.)
50. *Development of the Patella in Cormorants. HARRISON F. LEWIS, Canadian National Parks, Ottawa, Can. (20 min.)
51. *Rediscovery of Botteri's Sparrow in the United States. FRANCIS HARPER, Natick, Mass. (15 min.)
52. *The Distribution and Origin of the Races of the Canada Jay (*Perisoreus canadensis*). OLIVER L. AUSTIN, JR., Tuckahoe, N. Y. (30 min.)
53. The Local Willet Problem. JOHN T. NICHOLS, American Museum of Natural History, New York. (15 min.)

THURSDAY AFTERNOON—MOTION PICTURES.

54. Some Nesting Colonies of Gulls, Terns and Skimmers of Cape May County, N. J. WHARTON HUBER, Academy of Natural Sciences, Philadelphia, Pa. (15 min.)
55. Collecting Living Birds of Paradise. LEE S. CRANDALL, New York Zoological Park, New York. (30 min.)
56. The Courtship of the Ruffed Grouse. ARTHUR A. ALLEN, Cornell University, Ithaca, N. Y. (15 min.)
57. The 1929 Expedition of the Academy of Natural Sciences to Siam. RODOLPHE MEYER DE SCHAUENSEE, Academy of Natural Sciences, Philadelphia, Pa. (25 min.)
58. Reminiscences of Robert Ridgway and Other Pictures. NORMAN MCCLINTOCK, Pittsburgh, Pa. (30 min.)
59. The American Eagle on the Shores of Lake Erie. FRANCIS H. HERRICK, Western Reserve University, Cleveland, O. (Film exhibited by S. Prentiss Baldwin.) (15 min.)
60. The Home Life of the Marsh Hawk and Other Birds of the Finger Lakes Region, N. Y. ARTHUR A. ALLEN, Cornell University, Ithaca, N. Y. (20 min.)

Attendance.—The registration showed the presence of 25 Fellows, 1 Corresponding Fellow, and 29 Members, while the list of Associates brought the total up to about 225 members, the largest thus far recorded at any meeting. Among the number were one of the Founders, Charles F. Batchelder, and three Fellows elected at the first meeting, Ruthven Deane, Thomas S. Roberts and W. E. Saunders. Among the members who came from a distance were Rollo H. Beck who had recently returned from New Guinea after spending several years in field work in the South Pacific, Dr. Joseph Grinnell and Mrs. Amelia S. Allen from California, Oscar P. Allert from Iowa, Dr. T. S. Roberts from Minnesota and eleven members from Canada.

Representatives were present from 21 States, the District of Columbia and the Provinces of Ontario and Quebec. The States included California, Iowa, Minnesota and all those east of the Mississippi River with 7 exceptions—Delaware, North Carolina, Florida, Alabama, Mississippi, Kentucky and Wisconsin. The largest delegations outside of Pennsylvania included 27 each from the District of Columbia and New York and 19 from Massachusetts.

Fifteen museums were represented by one or more of their members (including six directors) viz, American, Canadian National, Carnegie, Charleston, Childrens Museum of Newport, R. I., Cleveland, Field, Museum of Comparative Zoology, Museum of Vertebrate Zoology, Academy of Natural Sciences of Philadelphia, Princeton, Royal Ontario, University of Michigan, University of Minnesota and U. S. National.

Fourteen colleges and universities were also represented viz, Bowdoin, Cornell, Oberlin, Ohio State University, Swarthmore, Peabody College in Nashville, Princeton University, State College of Agriculture of Georgia, the Universities of California, Michigan, Minnesota, Pennsylvania, Pittsburgh and Western Reserve in Cleveland.

Notwithstanding the larger attendance, the representation whether considered from the standpoint of States, museums or higher institutions of learning, was about the same as that last year at Charleston, S. C.

As a record of the meeting a group photograph of about 125 of the members was taken on Wednesday at the main entrance of the Academy.

FELLOWS AND MEMBERS PRESENT.

FELLOWS.—Arthur A. Allen, Mrs. Vernon Bailey, Thomas Barbour, Charles F. Batchelder, Arthur C. Bent, James P. Chapin, Frank M. Chapman, Ruthven Deane, James H. Fleming, Herbert Friedmann, Joseph Grinnell, Ludlow Griscom, Lynds Jones, W. L. McAtee, Robert C. Murphy, Harry C. Oberholser, T. S. Palmer, James L. Peters, Joseph H. Riley, Thomas S. Roberts, William E. Saunders, Witmer Stone, Percy A. Taverner, W. E. Clyde Todd, Charles W. Townsend, Alexander Wetmore.—25.

CORRESPONDING FELLOW.—M. A. Carriker.

MEMBERS.—R. M. Anderson, Vernon Bailey, Wm. L. Baily, S. Prentiss Baldwin, Rollo H. Beck, James Bond, Maunsell S. Crosby, C. W. G. Eifrig, Alfred O. Gross, Francis Harper, Arthur H. Howell, Wharton Huber, Frederic H. Kennard, Frederick C. Lincoln, William I. Lyon, William Henry Mousley, John T. Nichols, T. Gilbert Pearson, Charles J. Pennock, Edward A. Preble, Charles H. Rogers, Lester L. Snyder, Alexander Sprunt, Jr., Herbert L. Stoddard, J. Fletcher Street, George H. Stuart 3d, Winsor M. Tyler, Josselyn Van Tyne, John T. Zimmer.—29.

ELECTION OF FELLOWS, MEMBERS AND ASSOCIATES.

FELLOWS—3

Mrs. Vernon Bailey, Washington, D. C.
Thomas Barbour, Cambridge, Mass.
Herbert Friedmann, Washington, D. C.

CORRESPONDING FELLOW—1

Alexander Matheson Morgan, Adelaide, South Australia.

MEMBERS—5

James Bond, Philadelphia, Pa.
Wolfrid Rudyerd Boulton, Pittsburgh, Pa.
Charles William Gustave Eifrig, River Forest, Ill.
Junius Henderson, Boulder, Colo.
Lester Lynne Snyder, Toronto, Ont.

ASSOCIATES—231

The names of Associates who have qualified appear in the annual directory of members in this number of 'The Auk.'

ELECTION OF OFFICERS.

The election of officers for 1930 resulted as follows: President, Joseph Grinnell; Vice-Presidents, J. H. Fleming and A. C. Bent; Secretary, T. S. Palmer; Treasurer, W. L. McAtee. Members of the Council (in addition to officers and ex-presidents) J. P. Chapin, Ruthven Deane, H. C. Oberholser, J. L. Peters, C. W. Richmond, T. S. Roberts and P. A. Taverner.

The Council elected Witmer Stone, as Editor of 'The Auk'; W. L. McAtee, Business Manager; George Stuart 3d, C. B. Riker and Edward Norris as Trustees; and A. C. Bent, Ruthven Deane, J. H. Fleming, W. L. McAtee, and T. S. Palmer as members of the Finance Committee.

REPORT OF THE SECRETARY.

BY T. S. PALMER.

THE Union closed its forty-sixth year in a prosperous and satisfactory condition as to membership and general activities.

Membership.—The total membership is only 117 more than reported last year notwithstanding the fact that 235 new associates were elected at the last meeting. Losses due to death, resignation, and delinquency cause a serious turn-over each year and prevent rapid increase in the membership. The members are distributed in all the States and Territories and in about forty foreign countries and colonies. The following tabulated statement shows the figures for the present membership in comparison with those of last year and of ten years ago:

	<i>Fellows</i>	<i>Retired Fellows</i>	<i>Hon- orary Fellows</i>	<i>Corres- ponding Fellows</i>	<i>Members</i>	<i>Associates</i>	<i>Total</i>
1919	48	3	19	63	84	807	1024
1928	49	5	22	88	103	1474	1741
1929	46	4	24	80	103	1601	1858

The losses by death included 4 Fellows, 1 Retired Fellow, 1 Honorary Fellow, 5 Corresponding Fellows, 1 Member, and 18 Associates—a total of 30.

In spite of the wide distribution of its members there are still large areas in eastern Europe and in Asia in which the Union is unrepresented. It has no members in any part of Asia, except China, Japan, Siam, and the Federated Malay States. Efforts to establish contacts with workers in Siberia, to which reference was made last year, have not as yet met with success.

Activities of Members Abroad.—During the past year more than usual activity in field work in foreign lands has been manifested by several members of the Union. The MacMillan Arctic Expedition, accompanied by Dr. S. C. Palmer, visited Baffin Island. J. Dewey Soper, who spent the winter in survey work on Baffin Island, has at last brought back definite information regarding the long sought breeding grounds of the Blue Goose. P. A. Taverner accompanied the annual Arctic Patrol of the Canadian Government to Greenland

and the islands in the Canadian Arctic Archipelago, reaching a latitude of about $78^{\circ} 30'$ on Ellesmere Island. In Tropical America, James Bond, of the Philadelphia Academy of Natural Sciences, visited some of the smaller islands of the British West Indies and Dr. Paul Bartsch of the National Museum also visited several of the more southern islands and those off the coast of Venezuela. Ernest G. Holt has continued his three years' survey of Venezuela in the interests of the Carnegie Museum. The Tyler-Duida Expedition of the American Museum, in charge of G. H. H. Tate, with R. S. Deck as ornithologist, left New York in July, 1928, for Venezuela. After touching at Pará and ascending the Amazon and the Orinoco they accomplished the ascent of Mt. Duida and spent about three months there, returning last May. Dr. Frank M. Chapman and Dr. Thomas Barbour both spent some time last winter at Barro Colorado Island in the Canal Zone, and later A. B. Howell and A. J. van Rossem also did some work at this station.

Several members as usual visited Europe, among them B. H. Christy, who devoted some time to observing the bird life of England and western Ireland.

Field work in Africa is still continuing actively. The expedition sent out by the Milwaukee Museum last year, which was accompanied by O. J. Gromme, returned some months ago after completing its work and brought back numerous specimens and pictures. The Gray Expedition in the interests of the Philadelphia Academy with W. W. Bowen as ornithologist obtained a large collection of birds from Angola and Tanganyika. H. C. Raven accompanied the Columbia University-American Museum Expedition which left during the summer expecting to spend six months in crossing Africa from east to west, principally in search of material illustrating gorillas and their anatomy. Undoubtedly the collections will include some birds. The American Museum has recently received about 600 birds collected by Murphy and Rockefeller in the Congo region. Farther south W. R. Boulton, who left last winter, has been collecting in Kenya Colony and in Nyassaland. The American Museum also dispatched an expedition early in the summer to the island of Madagascar, where in cooperation with M. Jean Delacour work has been progressing for several months.

In Asia the chief activity has been concentrated in the south-eastern region from China to Siam. The National Museum has continued to receive material from D. C. Graham in China. M. Delacour has made another trip to Indo-China collecting birds not only for museums but also live birds for his aviary. The Kelley-Roosevelt Expedition to India and Indo-China in the interest of the Field Museum of Natural History has recently returned after a successful season and has brought back more than 4000 birds from western Tonkin and northern Laos. The Indo-China Division of the expedition left Hanoi, Annam, in February and proceeded westward and finally turned south down the Meong River and reached Hue in July. Rodolphe M. de Schauensee in charge of the expedition of the Academy of Natural Sciences in Philadelphia has returned from a successful trip to Siam, and Dr. Hugh M. Smith, Commissioner of Fisheries of Siam, has continued to collect birds in that region as opportunity offered and has forwarded them to the National Museum. H. G. Deignan has taken up his residence at Prince Royal College at Chiangmai, Siam, and is collecting at every opportunity. In a letter received last May he stated that he had recently returned from a trip to the Shan States and to the southern border of China and had observed some 275 species of birds.

In the Pacific the New York Zoological Expedition to New Guinea returned Mar. 21, 1929, with a wonderful series of live birds including 40 Birds of Paradise, representing 9 species, and other forms not previously seen alive in this country. These birds are now on exhibition in the New York Zoological Park. R. H. Beck has returned after several years' work in the South Pacific, but the Whitney-Sanford Expedition of the American Museum is still actively at work in the field. Last March Dr. A. K. Fisher left with Gov. Gifford Pinchot on a cruise on the yacht 'Mary Pinchot.' After collecting on some of the islands in the Bahamas and off Yucatan the expedition passed through the Panama Canal, visited the Galapagos Islands, returned to Panama, and then went on to Tahiti collecting at all points. The party returned by steamer to San Francisco.

Biography and Bibliography.—The main work of the Committee during the past year has been the completion of the Ten-Year Index of 'The Auk', 1911-1920. Proof-reading occupied a large

part of the attention of the Secretary until May, although the Index itself was not published until July 5. Much assistance was rendered by Dr. Richmond in reading the proof and by Frank Bond in checking certain cross references. A special biographical list was prepared for the Introduction, giving the full names and dates for persons whose names appeared in the 'Index' and also of all members of the Union who died during this decade.

Assistance was rendered to the Editor of 'The Auk' in preparing obituaries of deceased members or securing aid in the preparation of appropriate notices. A separate department in 'The Auk' is now maintained for obituaries, and during the year twenty-three such notices were published in addition to two formal memorial addresses. By order of the Council names of members in the annual directory for 1929 were published in full for the first time. The collection of this information involved much extra correspondence but in spite of repeated efforts about seventy names still remain incomplete.

It has been the custom in recent years to publish names of deceased members in the list of members only once in five years. Preparations have been made for the appearance of this list in 1930, and it is contemplated to make it something more than a mere list by inserting after each name a reference to the obituary notice. It thus becomes not only a list of deceased members but also an index to biographies, and makes accessible a considerable amount of valuable biographical material.

On the appearance of the 'Index' efforts were made to place the volume in as many libraries as possible, both public and private, which possessed copies of 'The Auk' from 1911 to 1920. A revised list of the complete sets of the journal was published in 'The Auk' for October, 1929, and cards were sent to each of these libraries and to members who were likely to be interested. By October 15 the 'Index' had been distributed to about one half of the libraries which have complete sets and to about thirty others which have 'runs' for 1911-20.

As usual considerable time has been devoted to completing names for bibliographical entries chiefly for the Department of Agriculture, for Bent's 'Life Histories,' and for bibliographies for books on special subjects.

It is now comparatively easy to ascertain the important facts regarding the lives and activities of the principal American ornithologists, such as J. A. Allen, Audubon, Baird, Coues, and Wilson, but information regarding the early describers of North American birds is not so accessible, and ordinarily younger bird students are not familiar with the work of Boddaert, Brisson, Lesson, Pallas, Vieillot and many others. It is highly desirable that brief accounts of such men should be published from time to time in English, in journals that are generally accessible. Another important project is the collection of information, before it is too late, regarding some of the lesser known field collectors and the disposition of their material. During a trip to the Pacific Coast efforts were made to obtain such data regarding some of the field collectors and ornithologists in that region, and assistance in this project has already been extended by several members of the Cooper Ornithological Club.

Papers of the Charleston Meeting.—Of the fifty-four papers presented at the last annual meeting at least fourteen have been published, eight in 'The Auk' and six elsewhere. In the following list titles are given in the form in which the papers were finally published. Those which appeared in 'The Auk' include:

- No. 1. Stone's 'Mark Catesby and the Nomenclature of North American Birds.'
- No. 2. Fisher's 'In Memoriam: Harry Balch Bailey.'
- No. 6. Deane's 'Letters of Bachman to Audubon.'
- No. 7. Bishop's 'In Memoriam: Leverett Mills Loomis.'
- No. 21. Bergtold's 'Egg Weights from Egg Measurements.'
- No. 39. Breckenridge's 'Nelson's Sparrow Breeding in Minnesota.'
- No. 43. Lefevre's 'Birds of China.'
- No. 48. Decker & Bowles' 'Prairie Falcon in the State of Washington.' (Auk, 1930, pp. 25-31.)

Papers published elsewhere include:

- No. 10. Miss Cooke's 'Spread of the Starling in North America,' in Circular 40, U. S. Dept. Agriculture, pp. 1-9, Nov., 1928.
- No. 12. May's 'Results from Banding Black-crowned Night Herons,' in Bull. N. E. Bird Banding Assn., V, pp. 7-16, Jan., 1929.
- No. 28. Swarth's 'New Bird Family (Geospizidae) from the Galapagos Islands,' in Proc. Calif. Acad. Sci., XVIII, pp. 29-43, Jan., 1929.
- No. 33. Chapman's 'Nesting Habits of Wagler's Oropendola (*Zarhynchus wagleri*) on Barro Colorado Island,' in Bull. Am. Mus. Nat. Hist., LVIII, pp. 123-166, Dec. 31, 1928.

No. 44. Lincoln's 'What Constitutes a Record?' in Bull. Audubon Society, New Hampshire, VIII, pp. 17-20, 1929.

No. 45. Chapin's 'Eye-Color as a Subspecific Character in *Colinus striatus*,' in Journ. fur Ornith., Festschrift Ernst Hartert, pp. 174-183, Oct. 29, 1929.

Since the Washington meeting, Friedmann's paper on 'Parasitism of the Cuckoos,' which was presented at that meeting, has been still further elaborated by a paper on 'Social Parasitism in Birds,' in the Quart. Rev. Biol., III, pp. 554-569, Dec., 1928.

DECEASED MEMBERS, 1928-1929.

ROBERT RIDGWAY,¹ Founder and ex-President, died in his 79th year, at Olney, Ill., Mar. 25, 1929.

JONATHAN DWIGHT,² Fellow and ex-President, aged 70, died at New York City, Feb. 22, 1929.

EDWARD HOWE FORBUSH,³ Fellow, died in his 71st year, at Westboro, Mass., Mar. 7, 1929.

WALDRON DEWITT MILLER,⁴ Fellow, died in his 51st year, at New Brunswick, N. J., Aug. 7, 1929.

FREDERIC AUGUSTUS LUCAS,⁵ Retired Fellow, died in his 77th year, at Flushing, N. Y. Feb. 9, 1929.

ARCHIBALD JAMES CAMPBELL,⁶ Honorary Fellow, died in his 77th year, at Melbourne, Australia, Sept. 12, 1929.

ABEL CHAPMAN,⁷ Corresponding Fellow, aged 77, died at Houxty, Northumberland, Eng., Jan. 24, 1929.

JOHN JAMES DALGLEISH, Corresponding Fellow, of Brankston Grange, Alloa, Scotland, aged 85, died Dec. 29, 1921.

JOHN ALBERT LEACH,⁸ Corresponding Fellow, aged 59, died at Melbourne, Australia, Oct. 3, 1929.

HERBERT CHRISTOPHER ROBINSON,⁹ Corresponding Fellow, died in his 55th year, at Oxford, Eng., May 30, 1929.

EILER LEHN SHIOELER, Corresponding Fellow, died in his 55th year, at Copenhagen, Denmark, Aug. 13, 1929.

WIRT ROBINSON,¹⁰ Member, aged 64, died at Washington, D. C., Jan. 20, 1929.

¹ For obituary notice, see 'Auk,' XLVI, pp. 280-281.

² " " " " " " " p. 279; XLVII, pp. 1-6, por.

³ " " " " " " " pp. 279-280.

⁴ " " " " " " " pp. 577-580.

⁵ " " " " " " " pp. 281-282.

⁶ " " " " " " " XLVII, p. 133.

⁷ " " " " " " " XLVI, pp. 286-287.

⁸ " " " " " " " XLVII, p. 134.

⁹ " " " " " " " XLVI, pp. 578-579.

¹⁰ " " " " " " " pp. 282-284.

- ROBERT DESHAN CAMP,¹ Associate, aged 62, died at Brownsville, Tex., Aug. 6, 1929.
- FREDERICK MORTIMER CAPEN, Associate, died in his 57th year, at New York City, Feb. 27, 1929.
- CYRIL GUY HARROLD,² Associate, aged 33, died at New York City, Feb. 4, 1929.
- MRS. JAMES WILSON KIRKHAM, Associate, aged 71, died at Springfield, Mass., Nov. 1, 1928.
- ANTHONY RUDOLF KUSER,³ Associate, died in his 67th year, at Palm Beach, Fla., Feb. 8, 1929.
- HOWARD GEORGE LACEY,⁴ Associate, died in his 73d year, at Bournemouth, Eng., Mar. 5, 1929.
- FRANK ALEMAN LEACH, Associate, of Diablo, Calif., died in his 83rd year, June 19, 1929.
- MISS AGNES MAY LEARNED, Associate, of Hudson, Mass., died May 8, 1929.
- MRS. ANNE MAUD CHARLESWORTH LEVEY⁵ (Mrs. William Marshall Levey), Associate, died at Brookline, Mass., Apr. 23, 1929.
- ALFRED MARSHALL,⁶ Associate, died in his 62nd year, at Montrose, Ala., Mar. 24, 1929.
- CHARLES JOHNSON MAYNARD, Associate, died in his 85th year, at Newtonville, Mass., Oct. 15, 1929.
- FREDERICK SHAW MITCHELL,⁷ Associate, died in his 79th year, at Hornshaws, B. C., Feb. 15, 1929.
- LEIGH HUNT PENNINGTON,⁸ Associate, died in his 52nd year, at Washington, D. C., April, 24 1929.
- WILLIAM FLORIAN ROBERTS,⁹ Associate, died in his 74th year, at Washington, D. C., Feb. 18, 1929.
- ARTHUR WALES SUGDEN, Associate, died in his 70th year, at Hartford, Conn., Sept. 25, 1928.
- WILLIAM LYMAN UNDERWOOD,¹⁰ Associate, aged 65, died at Belmont, Mass., Jan. 28, 1929.
- MISS ANNA JACOBS VALENTINE, Associate, died at Bellefonte, Pa., Dec. 6, 1928.
- JUSTUS VON LINGERKE, Associate, aged 75, died at Orange, N. J., Oct. 7, 1929.

¹ For obituary notice, see 'Auk,' XLVI, pp. 581-582.
² " " " " " " " " pp. 285-286.
³ " " " " " " " " pp. 579-580.
⁴ " " " " " " " " p. 580.
⁵ " " " " " " " " p. 426.
⁶ " " " " " " " " XLVII, pp. 134-135.
⁷ " " " " " " " " XLVI, pp. 426-427.
⁸ " " " " " " " " p. 427.
⁹ " " " " " " " " pp. 580-581.
¹⁰ " " " " " " " " pp. 284-285.

GENERAL NOTES.

Peculiar Actions of the Loon (*Gavia immer*).—While collecting this past summer around Whitefish Point, Michigan, we came to a small lake, known as Long Lake which is about half a mile long and several hundred yards wide, with a long narrow island at the west end. As we came over the thinly wooded sand ridge and peered through the bushes we saw a female Loon with two young about a third grown on the lake in front of us. The three were close together and after firing the two young lay on the water but the female was gone. After waiting for about five minutes, expecting to see some trace of the old bird we then went out and picked up the young, after which we paddled slowly down the Lake, stopping to examine some beaver houses on the way, though always on the lookout for the old bird. Fully thirty minutes later when we were nearly at the island which divides the lake at its west end, we saw both male and female watching us. As we paddled towards them one bird retreated but the other kept coming closer. When about a hundred yards away it dove, coming up about as far to the rear as it had been in front of us. We turned and paddled towards it, again it dove and came up to the rear of us. This occurred no less than six times, and each time the bird came a little closer; at one time coming up within ten feet of the boat.

The gradual shortening of the dives no doubt was due to the fact that she was getting tired, but why did she continually dive under our boat when the male had retreated to the end of the lake and was no longer seen?

The only solution I can suggest is that she must have known that the young were in our boat though she could not see them for they were in our collecting sack. Is it possible that a Loon has a sense of smell strong enough to detect its young under such conditions?—W. BRYANT TYRRELL, Cranbrook Museum, Bloomfield Hills, Michigan.

Notes on a Holboell's Grebe in Captivity.—On December 10, 1929, a living Holboell's Grebe (*Colymbus holboelli*) was found on the railroad track three miles from the frozen river. When approached, it made a series of swift lunges of the sharp beak accompanied by discordant, raucous notes: *ca-a-ar*, *c-a-a-ar*, *ca-a-ar*, quite prolonged. Its neck could be stretched to so great a distance that a lunge of the bird would strike an approaching hand two feet distant. Yet when a hand was manoeuvred to touch the back, the bird allowed its feathers to be stroked gently, nervously twitching the head and uttering a soft continuance of whining notes: *qu-a-a-r-r-r-k-k*, beginning deep in the throat and attaining greater volume as the bill was opened preparatory to striking. It refused all offerings of salmon though it had been hours without food, but showed a slight interest in, pieces of the fish dropped near the bill from a height above the head and snapped at them, several times holding pieces in the bill and then tossing them to a distance by snapping the head in a semi-rotary motion—a

characteristic manoeuvre. It shook water and fish oil from the bill in the same manner. In trying to gain the sanctity of a dark corner, the bird stood erect and ran a few steps at a time with a hobbling motion. On congoleum flooring it even made efforts to fly, lying prone on the breast, head and neck outstretched and working the wings in a semi-flapping stroke, making strokes with the feet that partially lifted the body from the floor and carried it forward.

On the second day I could handle the bird without fear of injury, though it squawked and struck when anyone else came near. This quick adaptability to domestication and its utter fearlessness were a marked reaction, though it was ever averse to be anything but a "one-man" bird. At this time it would lie in apparent contentment in my hand, feet drawn up and concealed in the flank feathers, the head carried erect and horizontal. When held like this, the feet were sometimes paddled so fast as to form an indistinct blur. It showed no signs of suffering from hunger, being rather given over to insomnia however, I believe from lack of strength since it later recovered from this ailment. All previous efforts to force it to feed were in vain, nor did it drink water, yet it remained generally active and alert. A cat would cause it to fluff out the feathers, squawk in nervous warning and try to get closer to the animal. Automobiles that could be seen passing on the highway caused just the opposite reaction: the feathers would be drawn tight to the body, neck craned low and arched, with the head poised facing the object of suspicion, a fear it partly overcame. Usually it slept with the feet drawn up and concealed, and the head and neck laid straight back, bill pointing front and lying flat against the wing,—or with the head twisted to one side or the other, and the bill pointing toward the tail and partially concealed among the feathers of the back.

After an extensive sun-bath on the second day, the Grebe became more active than before; the dullness was gone and it was observant of the slightest activity. Happening to see the goldfish in their tank, it made vigorous efforts to probe the glass sides. When placed on a large receptacle of water and a large goldfish installed, the fish was intercepted so swiftly and deftly that the eye could scarcely follow the movement. From then on, when placed on the water, the bird immediately immersed head and neck in a search for fish. Munnie-chubs from brackish streams on the coast were obtained and were the bill-of-fare thereafter. One fish after another would be taken accurately in quick succession, but fearing that it might eat too many, I tried to regulate the meals to about five fish three times a day. One day it had taken a total of more than forty and was not then satisfied! These fish proved to be very oily and the Grebe's feathers usually wore a yellow coating of this liquid when it remained long on the water, which served, no doubt, as an aid in shedding water.

The manner of feeding was seen to excellent advantage. At times the bird would sit motionless on the water (the feet were always in slow or

fast motion), and watch for the dim brown shapes beneath. Then, without a preliminary movement except a slight turning of the head, it would make a lightning dart and get a fish two feet under water at any point in three-quarters of a circle and without shifting the body position, even taking a fish far back under its feet! But more commonly it immersed the head and, getting the course of a fish's darting shape, would strike with the head and entire neck under water. Again, it swam swiftly round to frighten the fish into a better light, and rarely ever missed a strike, taking its food just back of the gills or sometimes near the tail. It never seemed able to take munnie-chubs at night with the room in darkness. To my knowledge, the bird never swallowed a fish under water, but their size may have had something to do with this. Some necessitated much worming of the head up and down and the neck backward and forward before the fish went down. It took dead fish without partiality, either from the water or the hand, treating them in the same way as a living one. Live fish were treated in one of two ways:—by severe crunches of the mandibles on the head until subdued, or by severe shaking. Then it would be tossed around until the head pointed down the bird's throat, or else manoeuvred by quick opening and closing of the bill to a position where it could be swallowed, while still alive. Fish were always taken head first.

At times the Grebe made efforts to exercise on the water, standing up straight, clear of the water to the heel, and paddling very swiftly, beating the wings, while the neck was partially straightened and the bill pointed at about a forty-five degree angle. This manoeuvre carried the bird forward speedily over the water. It was unable to shed water as a perfectly healthy bird should do and rarely had recourse to preening its feathers.

When apparently fully restored to active health, the day before it was to have been liberated on the lake, the Grebe escaped over an eighteen inch partition, and going down a long flight of stairs crawled into a wood-pile where it died. There seems to have been a flight of these birds in the interior of New Hampshire this winter as I have ten records from four towns and others have been reported.—LEWIS O. SHELLEY, *East Westmoreland, N. H.*

A Flight of Holboell's Grebes (*Colymbus holboelli*) at Toronto.—

On the night of December 12 (1929), during a heavy sleet storm which glazed the pavements and snow-covered landscape of the Toronto region, an extensive flight of Holboell's Grebes took place. These birds were probably passing over southern Ontario from upper Lake Huron and Georgian Bay to Lake Ontario, Lake Erie and southward. Upon striking the storm area of the lower Great Lakes some of them came to grief, either permanently or temporarily, while others apparently made the open waters of the lakes.

Late in the evening of the twelfth, a call was sent in to the office of the Toronto Humane Society from the western part of the city stating that a Loon-like bird had been picked up alive from the street. Shortly after, another call from the eastern part of the city referred to a similar find. By mid-afternoon of the thirteenth, twenty-six more live birds had been gathered in by the Inspectors or brought in by citizens from various parts of the city. Also two had been reported killed by motor cars and one other was found dead, the cause of death not being reported. By December 15, six more live birds had been gathered in, making a total of thirty-seven found at Toronto.

One can but conjecture as to the number of Grebes in the flight but it is evident that it was wide-spread and that numbers passed safely over the city. Several individuals were noted along the Toronto water-front, on December 14, by local observers and a specimen was reported in a local paper as having been captured at Brantford, fifty-five miles southwest of Toronto.

It would seem evident from the number of birds picked up alive and uninjured in Toronto that the birds came to rest on the city streets voluntarily. Only two were reported as being found in "back yards". Such circumstances give rise to the theory that the Grebes, travelling in a loose company, over a wide area, were perhaps attracted by the lights of the city and from their elevation mistook the icy pavements below for water. Having alighted they were unable to take wing because of their well known handicap on solid surfaces.

Twenty-seven of these birds were banded on the afternoon of December 16 and were liberated on the open water of Toronto Bay. They swam away contentedly from their liberators, preening themselves and otherwise behaving in a normal way. Only one Holboell's Grebe has since been seen (to December 31) on Toronto Bay and it is presumed that the liberated birds and those which reached the open water on the night of the flight have survived and left the vicinity.—L. L. SNYDER, *Royal Ontario Museum of Zoology, Toronto.*

Holboell's Grebe in Pennsylvania.—On February 26, 1930, during a storm with strong northeast winds, a Holboell's Grebe (*Colymbus holboellii*) visited the Maidencreek Dam near Reading. It remained until the following day and was studied at leisure by Byron Nunemacher and myself. Most of the time it rode the choppy waters with its bill buried in the feathers of its back, but would occasionally raise its head and look about in the reptilian manner peculiar to its kind. This is the second definite county record, the last having been noted March 21, 1923.

Pine Grosbeaks were also seen locally on January 1 (2), January 2 (9), January 12 (12), and February 2 (2), and Evening Grosbeaks on January 1, January 5, January 25 and February 9, (one on each occasion), and a Red-bellied Woodpecker was found near Friedensburg on January 10.—EARL L. POOLE, *Reading Public Museum, Reading, Pa.*

Black Guillemot (*Cepphus grylle*) at Cape May, N. J.—On December 10, 1929, while observing the water birds gathered near the jetty north of the city of Cape May, a Black Guillemot flew from the northeast into the comparative calm of the lee side of the jetty. He remained within twenty feet of me for at least fifteen minutes. He dove twice during this period using both wings and feet to submerge. Upon coming to the surface, the bird apparently used his wings alone. This specimen was in the "mottled," grayish winter plumage, appearing very light colored when flying. The white wing markings were very conspicuous both in flight and at rest. The red feet dangled behind him as he flew, and were the first things to attract attention.

It might be added that one Purple Sandpiper (*Arquatella m. maritima*) was seen on the jetty at the same time while on December 11, at the same place, five of the Sandpipers were observed feeding just above the water-line. This is the earliest date for these Sandpipers, recorded from Cape May. They have been seen every December, near Christmas time, by Mr. William Yoder, since he first reported them in 1924 (Auk, 1925, p. 267).—C. ELIOT UNDERDOWN, *Elkins Park, Pa.*

White Pelican (*Pelecanus erythrorhynchos*) in Georgia.—Through the kindness of Mr. Peter Gething of this city, I have the privilege of recording the third occurrence of the White Pelican (*Pelecanus erythrorhynchos*) for Georgia.

While engaged in work at Brunswick, Georgia, recently, Mr. Gething noted a specimen of this bird in the shop of a local taxidermist. Subsequent inquiry elicited the fact that it had been taken in early October, 1929, off St. Catherine's Island, not far from Brunswick. The bird was apparently sick when first seen and was unable to rise from the water, it having been noticed for several days about the surf, by a resident of the Island. Seeing that it was unable to fly, it was shot with a rifle and found to be greatly emaciated, though in fine plumage. Mr. Gething kindly took several photographs of the bird and these show clearly that the specimen is a White Pelican. It was mounted with the wings spread.

Through correspondence with Mr. Arthur H. Howell, of the Biological Survey, I learn that the species has been taken in the state on two former occasions; three killed on St. Mary's River, Saltilla River, and Cumberland Island in 1903, and one taken at Savannah in 1912. These records were published in 'The Auk,' the former in Vol. 21, p. 277, and the latter in Vol. 30, p. 106.—ALEXANDER SPRUNT, JR., *92 South Battery, Charleston, S. C.*

The Long-tailed Jaeger in Ohio.—A dark-plumaged Jaeger collected by the authors on September 5, 1928, at Buckeye Lake, Licking Co., Ohio, has recently been examined by Dr. H. C. Oberholser and identified as *Stercorarius longicaudus*. The skin is preserved in the Ohio State Museum collection. No previous records of the occurrence of the Long-tailed Jaeger in Ohio are known to us.—MILTON B. TRAUTMAN and CHARLES F. WALKER, *Ohio State Museum, Columbus, Ohio.*

The European Black-headed Gull (*Larus ridibundus*) in North America.¹—A specimen of the European Black-headed Gull (*Larus ridibundus ridibundus* L.) was taken in the harbor of Newburyport, Massachusetts, on January 27, 1930. Invaluable assistance was rendered in securing the specimen by Messrs. Edward Babson and Charles H. Richardson, Jr.

This bird had been observed on the preceding day by Messrs. F. H. Allen, C. E. Clarke, John Conkey, G. L. Perry, G. B. Redding, and the writers, and happened to be first detected by Emilio, who called the attention of the party to it as utterly strange to this region. It was recognized by Griscom as probably *ridibundus*.

The specimen was critically examined, measured, and compared in the flesh at the Museum of Comparative Zoölogy at Cambridge, by Mr. James L. Peters and Griscom and, after sexing by Mr. John D. Smith, preparator, was definitely assigned to the European race, *ridibundus*. It has been presented to the Boston Society of Natural History.

The bird, which proved to be a male, was in adult winter plumage, very closely resembling the Bonaparte's Gulls with which it associated, but appearing to be slightly larger, with longer, more flexible wings and showing in flight considerable dusky gray or slaty on the under side of the primaries. The bill was about a third longer than the Bonaparte's and a deep red in color. The tarsi and toes were almost crimson. This little Gull was entirely able-bodied, vigorous, and apparently in perfect physical condition and beautiful plumage.

A ringed, or banded, Gull of this species was taken at Barbados several years ago, and, together with another from Vera Cruz, is mentioned by Mr. F. C. Lincoln in 'The Auk,' July, 1925, p. 374. This Massachusetts visit, however, seems to be the first recorded occurrence of the bird in North America, north of Mexico, and therefore new to the A. O. U. 'Check-List.' It is the third bird new to the North American avifauna to be recorded from this County of Essex, Massachusetts, in the last ten years, the others being the Sheld Duck and the Pink-footed Goose.—S. GILBERT EMILIO, Peabody Museum, Salem, Mass., and LUDLOW GRISCOM, Museum of Comparative Zoölogy, Cambridge, Mass.

That Alberta Bean Goose—A Correction.—In 'The Auk,' Vol. XLIV, 1927, p. 558, I recorded the capture of a Bean Goose (*Anser fabalis*), taken, leading a flock of wild Canada Geese, at Bittern Lake, Alberta. It seemed like a most extraordinary occurrence but all circumstances and conditions pointed towards it being a perfectly feral bird and it agreed as closely as possible with descriptions and plates of that species. I have been more or less uneasy since committing myself as above, and after correspondence with Dr. S. A. Buturlin of Moscow, Russia, who has specialized in Eurasian Geese, was further shaken in my

¹Published by the Dwight Memorial Fund.

determination. Lately I have received report of a banded hybrid Goose, Domestic X Canada, that escaped at Dimmitt, Texas, and was shot "while heading a large flock of Canada Geese" at Lake Manitou, Saskatchewan. Under all these circumstances I feel that it would be well to withdraw the record and apologize for my hasty action.—P. A. TAVERNER, *National Museum of Canada, Ottawa, Canada.*

The Brant (*Branta bernicla glaucogastra*) on the South Carolina Coast.—The new year was not three days old before it brought ornithological history to South Carolina in the second authentic record for the Brant (*B. bernicla glaucogastra*).

On the afternoon of January 3, Messrs. Dick Grant and Allan Heyward were hunting back of Morris Island, not far from historic Fort Sumter, at the entrance to Charleston Harbor. Two birds which they took for Ducks were seen swimming ahead of the boat, and upon approach, turned toward the marsh and scrambled ashore upon a mud bank. They remained there for a few moments and then, taking wing, one fell to the gun and the other escaped.

Not recognizing the bird, Messrs. Grant and Heyward took it to the home of Mr. E. Milby Burton who at once pronounced it a Brant. He then called the writer on the telephone and the identification was quickly verified. Upon learning the value of the specimen Messrs. Grant and Heyward kindly presented it to the Charleston Museum. The bird was in good condition, fairly fat, the stomach contained about an ounce and a half of sand together with a small piece of sea-lettuce (*Ulva lactuca*).

The capture of this specimen occurred at almost the identical spot where the first bird was taken and a space of five years and six days separate the two. It is rather remarkable that the locality and time of year are so much the same. The first bird was taken between Fort Sumter and Morris Island on December 28, 1924, by Messrs. Alex Mikell and Edward Manigault.

The Brant has been listed for South Carolina by both Dr. Elliott Coues and Prof. Wells W. Cooke as occurring in winter, but the bird has never been seen by local ornithologists and the two records accounted for above are the sole instances of capture as far as is known. Mr. Arthur T. Wayne, who has observed birds on this coast for more than forty-five years, has never seen it, and the writer's experience of fifteen years or more, has been the same. Both Brant shot locally were taken within plain sight of the city of Charleston.—ALEXANDER SPRUNT, JR., *Charleston Museum, Charleston, S. C.*

Nuptial Performance of the Hooded Merganser.—In the spring of 1929, in the latter part of March or early April, one female and three or four male Hooded Mergansers were in the open water of the inner part of the marsh in Abbey Dawn Sanctuary. I was very close and had my binoculars. The female was progressing very slowly and seemingly

occupied with her own thoughts, for she paid scant attention to the spectacular dancing going on around her. The males were performing and displaying. Their hoods were up. I saw no changes in their hoods. I cannot say now for certain that their tails were erect and in display, but I think they were. Each male acted in solo. He would raise his beak and his head would go back until his hood was about at his tail, which movement lifted the upper or front (throat) part of his breast a little out of the water. His head would not stop when it got near his tail except to pause imperceptibly for the return motion. The head came forward and, while the beak was about straight up, the bird gave a low cooing note but with good resonance, and the sweeping motion of the head lent this note the same quality of sound that the swinging of a bell imparts to the note of the bell. The sound was a soft *Ooooo* (as in *too*) or *Ew* . . . (as in *few*). This motion was continuous from start to finish, with a sweeping and graceful beauty. It ended with the breast depressed by the weight of the head coming forward. As soon as the head was forward the bird seemed to give itself a violent push through the water, starting a little run or dash, so to speak, to probably around fifteen feet from where the performance began then the head was in repose. This last part of the dance was a most unexpected ending. It amused me for I thought, when the first one did it, that this dance had been suddenly terminated by a sting on the tail! In other words, the dance, being so beautiful and dramatic must end with a dash. The dash was in any direction in which the bird happened to be facing. The cooing note struck me at first as most strange, but upon analysis, poetically speaking, it defies me to suggest any bird sound that could be more fitting. It is truly entrancing, but the female did not seem to think so.—WALLACE HAVELOCK ROBB, *Abbey Dawn, Kingston, Canada.*

Great Blue Heron Fishing in Deep Water.—On June 2, 1929, while observing the abundant bird life on and about Spring Lake, Meeker County, Minnesota, I had excellent opportunity to study the unusual fishing habits of two Great Blue Herons. While out on the lake in my canoe during the forenoon, I had noticed the abundance of young bullheads which, in large schools, were swimming about on or near the surface of the lake as is their habit at this time of the year. They were of various sizes in the different schools, all the way from fingerlings to fish four to six inches in length.

It became very windy during the afternoon and that was when the Great Blue Herons were busy. They would generally fly with the wind over the lake, spy a school of fish and then dive into the water for them often submerging the head and entire neck after the escaping prey. Generally in a short time, a few seconds to half a minute, each would capture a fish and fly against the wind to a high sheltered shore where they would strike the fish with the bill for a considerable time before swallowing them. Through my binoculars, I could see that the fish, as they held

them up at intervals previous to further pummeling, were most of them of fair size. No doubt the pounding process was to kill them before swallowing and to do such a good job of it that they were certain the fish could not erect the dangerous spines which otherwise might cause gastric complications.

As I knew, from soundings the depth of the water in all parts of the lake, the Herons did their fishing in depths varying from six to fourteen feet during the hour or more that I observed them, and each one carried out of the lake quite a number of fish. It proves that this species of Heron is not afraid to alight in deep water and remain there for some time. The wings were held up out of the water and not very much of the body was submerged. When a fish had been caught, they rose without difficulty from the surface.

In the October number of 'The Auk,' 1926, p. 537, is a somewhat similar observation by Mr. Owen J. Gromme and another is recorded by Dr. T. Gilbert Pearson in 'Bird Lore' Vol XXV, p. 77. No doubt these birds were also fishing.—J. P. JENSEN, *Dassel, Minnesota*.

Note on the Courtship of the Bittern (*Botaurus lentiginosus*).—Mr. William Brewster, in his original account of the display of white plumes in the Bittern, says: "We frequently saw them [the white plumes] fully displayed when the Bitterns were 'pumping,' but not then more conspicuously or in any different way, than at other times." The display of white plumes appears to be a continuous performance during the courtship, and not limited to the period of "pumping." This has been confirmed in published descriptions by other observers and has hitherto been my own experience. Thus, on May 30, 1913, I recorded in my notes of a Bittern that "pumped" at intervals: "White plumes at shoulders visible all the time as he walked about the meadow with head on level with shoulders. At times he stood motionless with head pointing up, but the white plumes still showing."

On May 18, 1929, from a canoe in the Topsfield marshes of the Ipswich River I had an excellent opportunity to watch a Bittern standing in short grass about a hundred and fifty yards away, and in this case the display of plumes followed a different order. For a minute or less the bird would stand erect with bill pointing upwards and with no trace of white plumes to be seen. He would then crouch, the conspicuous white plumes would suddenly pop out from his shoulders and wave in the breeze, he would at once stretch out his neck and act as if gulping in wind and then belching it out, at the same time emitting the "pumping" sound three to five times, generally four times. The Bittern would then resume the erect position and the plumes would disappear as quickly and as mysteriously as they had come. This series of events I watched closely with eight power binoculars about a dozen times. At no time were the plumes to be seen except during the "pumping."—CHARLES W. TOWNSEND, *Ipswich, Mass.*

Early Nesting of the Bittern (*Botaurus lentiginosus*) in South Jersey.—On May 4, 1928, Mr. Frederick A. Hemphill and the writer found a Bittern's nest in the salt meadows at Cape May Court House, N. J. containing four highly incubated eggs. The female had to be actually pushed from the nest.

This is about three weeks earlier than the usually recorded nesting date for this species, in southern New Jersey. Supposing the eggs were fourteen days incubated the nest must have held a fresh clutch about April 20.

On May 30, 1921, I found a Bittern's nest containing two young over a week old, at West Cape May, and at the same locality Mr. Turner E. McMullen collected five slightly incubated eggs on May 22, 1921, while on May 21, 1922, at Cape May Court House, Mr. William Jay found a nest with four highly incubated eggs. I was with both parties when they found these nests and they constitute all the Bittern's nests I have ever seen in southern Jersey.—RICHARD F. MILLER, *Philadelphia, Pa.*

Carolina Rail (*Porzana carolina*) Wintering in Colorado.—On January 10, 1930, when approaching a bridge across a marshy stream north of Aurora, Colorado, I saw a Carolina Rail about twenty-five feet away, walking over the mud and snow at the margin of the water. The black on the face and throat and the short, thick bill were seen clearly, distinguishing it from the Virginia Rail (*Rallus virginianus*) which is known to winter in this state. It disappeared in a clump of vegetation, and when I came still nearer, arose, flew about twenty feet and dropped out of sight among the cat-tails. For some minutes later I heard the usual squeaking *ur-ur-ur* alarm call. The water had not frozen over despite the zero weather, because of a stream from the Aurora sewer plant emptying into it, keeping it at a temperature of about 37° F. Standard bird books of the state do not mention this species wintering here.—LEON KELSO, *Aurora, Colorado.*

Abundance of Wintering Limicolae on the Florida West Coast.—While spending the winter of 1929 (January–April) at Dunedin, Florida, I was particularly interested in noting the relative abundance of the wintering and migrant *Limicolae*.

The largest concentration of shore-birds appeared to be on the mud-flats, at low tide, in Old Tampa Bay, south of Safety Harbor. Great numbers were also noted along either side of the causeway to Clearwater Beach; along both sides of the approaches to Gandy Bridge, and on the beaches north of Sarasota, near the Whitfield Estates.

A summary of these observations for the purpose of comparison with one-time and future numbers of these shore-birds is herewith presented. Shore-birds were recorded on 44 field trips between January 15 and May 2, 1929; the species are arranged below according to the frequency of occur-

ence; the number of field trips on which each species was noted is given, together with the place, date and approximate number when the maximum was observed:

	No. of times recorded	Locality	Maxi- mum	Date
Black-bellied Plover.....	31	Safety Harbor	350	Feb. 2
Killdeer.....	28	Safety Harbor	500	Feb. 2
Willet and Western Willet	26	near Sarasota	105	Mar. 31
Semipalmated Plover.....	24	Safety Harbor	1500	Feb. 2
Spotted Sandpiper.....	23	Davis Island, Tampa	4	Mar. 23
Semipalmated Sandpiper	23	Safety Harbor	1200	Feb. 2
Sanderling.....	21	Clearwater Beach	90	Jan. 18
Ruddy Turnstone.....	21	Safety Harbor	65	Feb. 5
Wilson's Plover.....	19	near Sarasota	125	Mar. 31
Dowitcher.....	18	Safety Harbor	850	Feb. 2
Red-backed Sandpiper....	18	Safety Harbor	1000	Feb. 2
Least Sandpiper.....	16	Tampa Bay	125	April 20
Knot.....	13	Safety Harbor	350	Feb. 5
Piping Plover.....	12	Tampa Bay	15	Mar. 31
Western Sandpiper.....	5	Clearwater Beach	30	Feb. 6
Greater Yellow-legs.....	5	Safety Harbor	1	Feb. 5
Lesser Yellow-legs.....	3	Rocky Point, Tampa	2	April 22
Hudsonian Curlew.....	3	Clearwater Beach	3	April 26
Long-billed Dowitcher....	2	Safety Harbor	10	Feb. 2
Cuban Snowy Plover.....	2	south of Sarasota	7	April 20
Solitary Sandpiper.....	2	Rocky Point, Tampa	1	April 29
Wilson's Snipe.....	2	Wall Springs	1	Mar. 3

Besides these 22 species, Mr. William G. Fargo has recently recorded (Wilson Bulletin, 1926, pp. 147-148) the following additional species from this region:—

"Pectoral Sandpiper.—Only seen in migration (March 31, 1926).

White-rumped Sandpiper.—A few in migration, May 14, 15, 1926.

Baird's Sandpiper.—Migrants, May 14, 15, 1926.

Marbled Godwit.—One seen near Pass-a-Grille, March 2, 1925 and one at Cedar Keys, Florida, February 19, 1923."

And in the Wilson Bulletin (1928, p. 54). Mr. Fargo gives:—

"Oyster-catcher.—One individual . . . seen at Pass-a-Grille on April 3, 1927."—PHILIP A. DuMONT, *American Museum of Natural History*.

Notes on the American Woodcock in central West Virginia.—In 1921 the State Game Commission established a game refuge near French Creek, Upshur County, West Virginia, and since that time there has been a very marked increase in the numbers of Woodcock (*Philohela minor*)

observed. Prior to this time the author and others had observed regularly in this community, and the bird, while not rare, was only occasionally met with. Since 1921 there has been a steady growth in the numbers of this species, and on the evening of March 21, 1929, Mr. Fred E. Brooks and the author counted six of the birds all "sky dancing" at the same time.

The sky dances have been observed and recorded regularly for the last ten years. The earliest date for the performance here is March 1, 1929, while in 1924 the dances did not start until April 6. The average first date for the ten year period is March 16. Dancing is usually intermittent throughout the greater part of April, the last date on which we have noted it here being May 3, 1928.

Great irregularity in breeding seems to characterize the species here. Half-grown young were observed April 24, 1922 and May 7, 1926, while young scarcely more than half-grown were seen July 11, 1929. A nest with four eggs was found May 15, 1917, in a very unusual place, being located in an orchard on top of a high hill. Not even a spring flowed near the nest, and a dryer site could scarcely have been found in the neighborhood. The female allowed herself to be stroked on the nest, and photographing her thus was easy.

Perhaps the most interesting result of the abundance of these birds has been the opportunity to observe twice the carrying of young birds by one of the parents. On May 7, 1926, while we were spraying an apple orchard, an adult Woodcock and two young were flushed. It was noted at a glance by three observers that the old bird appeared to have some object dangling from her body, and that she flew very heavily, for only a short distance. She was then followed up, and when she again rose from the grass, a young bird could be plainly seen hanging between her legs. Three of these flights were made before she finally abandoned the young bird.

Again on July 11, 1929, an old Woodcock and three young were scared from a small seep hole, and as the adult flew, a fourth young one was seen hanging from her. This time observation was made with a 6x glass at short range. Four of these over-burdened flights were made by the old bird before she gave it up as a bad job.

The notable increase in the number of birds of this species on the game refuge is another striking example of what reasonable protection will do for a much-harrassed tribe.—MAURICE G. BROOKS, *French Creek, W. Va.*

Another Record of the Red Phalarope in Ohio.—On November 2, 1929 a female Red Phalarope (*Phalaropus fulicarius*) was collected at Buckeye Lake, Fairfield Co., Ohio, under rather unusual circumstances. Our attention was first attracted to the bird as it flew over the lake at a considerable distance. Before we were able to approach it, however, it was shot by a hunter from a nearby blind and left lying on the water. The specimen was secured and although somewhat mutilated was satisfactorily preserved. It is now in the collection of the Ohio State Museum.

This appears to be the second Ohio record. The first, also from the central part of the state, was taken by us on September 29, 1927 (Auk, Vol. XLV, p. 94). Both specimens are in winter plumage.—MILTON B. TRAUTMAN and CHARLES F. WALKER, *Ohio State Museum, Columbus*.

Extension of the Winter Range of the Piping Plover (*Charadrius melodus*).—For the past several years the writer has been paying particular attention to the wintering shorebirds of the South Carolina coast, and some interesting facts have come to light in this study. It will be recalled that the Knot (*Calidris canutus rufus*) was recently established as a regular winter visitor, thus altering its former status of transient visitor. Specimens have been seen and taken each winter month now, for four seasons, proving their presence on the South Atlantic coast much further north than was formerly supposed.

And now the Piping Plover (*Charadrius melodus*) must be classed also as a regular wintering species as far north, at least, as Charleston, S. C. Although Audubon stated that this Plover wintered from South Carolina southward, his opinion has been generally rejected and no present ornithological work gives the winter range anywhere near as far north as Charleston. Mr. A. C. Bent gives it as the South Atlantic and Gulf States with Savannah, Georgia, as the extreme northern limit. For the past three winters the writer has noted the presence of this species in South Carolina. The localities cover a range on the barrier islands from a point some twenty miles north of Charleston to thirty miles south of that city. In 1928 and 1929 no birds were taken, but in January of this year (1930) two were taken on Seabrook's island, and small flocks seen on that beach. This winter the species has been noted with nearly as much regularity as one could expect in the migrations, from three to six in a flock. It is never very common, and one rarely sees more than five or six together even in the spring migration. These observations and captured specimens increase the known winter range of the Piping Plover at least one hundred miles northward. The writer was accompanied in the field work of this season by Mr. Francis M. Weston of Pensacola, Florida, who was also present in former years when these Plovers were noted. While the work of but three or four years is not a great deal to go upon, it certainly proves that these birds are regular winter visitors for that length of time, locally, and there is no reason to believe that all these occurrences are abnormal. There is no room for doubt that the species is wintering farther north than heretofore believed.—ALEXANDER SPRUNT, JR., *92 South Battery, Charleston, S. C.*

Turkey Vulture at Chatham, Mass.—On November 19, 1929, a Turkey Vulture (*Cathartes aura septentrionalis*) was taken at Chatham, Mass. It was in very good condition and the crop was filled with remains of a chicken freshly killed though probably not by the Vulture.—EVERET R. ELDRIDGE, *West Chatham, Mass.*

Turkey Vulture in West Chester Co., N. Y.—Two Turkey Vultures (*Cathartes aura septentrionalis*), presumably a pair, were seen on June 3, 1928, by Mrs. C. Carll Tucker and myself at Pound Ridge, Westchester Co., N. Y. Several years ago there was a record of the breeding of this species in the adjoining township and Mr. C. H. Pangburn has recorded a single bird at Chappaqua, N. Y. (Auk, 1929, p. 385).—JOHN H. BAKER, 1165, Fifth Ave., New York.

Turkey Vulture Wintering in Calhoun Co., Mich.—On December 22, 1929, while taking a Christmas Census for 'Bird-Lore,' I observed, twelve miles east of Battle Creek, Mich., a Turkey Vulture (*Cathartes aura septentrionalis*) resting in a tall dead tree. He flew almost immediately. His mammoth size, so much larger than the Crows nearby, with wing expanse apparently six feet or more, together with the lighter area on the lower side of the wings served to identify the bird; to further aid in a sure identification, near the carcass of a dead horse found only a few rods from the base of the tree, were several large chicken-like tracks, clearly distinguishable in the snow from the numerous Crow tracks. By rough measurement they were 5.75 to 6 inches long and 4.5 inches wide. A neighboring farmer, hunter, and trapper said the Vulture had been there all during the day and was adept at soaring overhead. The bird not only had been interested in the horse but also in a Crow caught in a trap, over which he had soared for a long time.

Although the Vulture is not abundant in this county it has been observed many times by the writer. The greatest number was on September 15, 1929, when five miles south of Marshall, twenty Vultures were seen soaring gracefully over Notawa Lake. Frequent summer observations of the bird have been made in the region of this winter record but never before has the bird been observed during the winter months.—LAWRENCE H. WALKINSHAW, M. D., Battle Creek, Michigan.

Notes on the Senses of Vultures.—As a collector of beetles I have frequently been forced to use carrion as bait, and have thus acquired an intimacy with a subject which more fortunate zoölogists can avoid. This, I think, qualifies me to make a few remarks on the entomology of corpses and to suggest a relationship between the insects which they attract and the finding of food by Vultures. The facts are easily presented. Soon after the death of an animal, except in unusual cases or during cold weather, the body attracts numbers of flies and beetles, some of which may continue to circle about it for several hours or days. The resulting congregation of insects is noisy and conspicuous, and of a sort which does not often occur except about decaying material, so that it may be considered more or less characteristic of the latter. Since Vultures can undoubtedly see and perhaps hear such insect swarms at a distance, they have probably learned to recognize their significance, just as we recognize the significance of gatherings of the Cathartidae.

No attempt will be made here to apply this suggestion in detail, since I have not myself carried on controlled experiments with the birds, but I should like to mention a few of the observations which first led me to think that Vultures might be practical entomologists.

The first incident took place at the Harvard Tropical Laboratory on the Soledad sugar estate near Cienfuegos, Cuba. In November, 1926, some dead fish were put out near Harvard House to attract beetles, but were stolen by Turkey Buzzards the first day. The bait had been hidden under fairly large stones, and since it was placed beside a garden where people were frequently moving about, there is no reason to suppose that the birds were attracted by my actions. They may, indeed, have smelled the fish, but it seems just as likely that they saw the insects which collected and which would have given the set away to any intelligent human being. Near Santa Marta, Colombia, in 1928, the same sort of thing happened, for when dead iguanas were put out they were invariably discovered by Vultures, even when the baiting was done in scrubby woods. The most rational explanation in this case seemed to be that the birds had heard the carrion-drawn flies.

These experiments, if they may be called that, were admittedly not planned to test the senses of Buzzards, but they have suggested a possible factor in the birds' behavior which seems to have been overlooked, and there are doubtless other factors still to be found. In fact I think it is a safe assumption that both the Turkey Buzzard and Black Vulture are very intelligent birds which make use of their senses in every possible way in their search for food. They must be forced to do so by strict competition. This conclusion is supported by conversations with Boston ornithologists and, indirectly, by various published accounts.

If a moral must be drawn from the preceding paragraphs, it is not primarily that Buzzards are attracted by carrion-feeding insects, although I think they are. Nor is it that they do or do not possess a nose. It is rather that they are highly organized animals which presumably react to a complex environment in a very complex manner, and which must be experimented with accordingly.—P. J. DARLINGTON, JR., *Care of Museum of Comparative Zoölogy, Cambridge, Mass.*

Long-eared Owl at Lexington, Va.—The Long-eared Owl (*Asio wilsonianus*) seems to be quite rare in western Virginia. The first specimen to be recorded for the Lexington region, a large female, was brought to me on December 26, 1929. It had been shot early that morning in daylight when it was frightened from a dense covert in one of the large sink-holes that abound in this limestone region. This sink-hole is filled with a thick tangle of bushes, briars, and honeysuckle vines, with a few small trees. The stomach contained a flattened oblong mass of feathers and bones, evidently a pellet almost ready for ejection. Several whole grains of corn were stuck on one end of the mass. This was examined by the Biological Survey, with the report that it consisted "entirely of the remains

of a Mourning Dove," the corn being from the stomach of the Dove. The man who shot this Owl told me that he had seen one or more additional Owls of the same kind at this place and that they had been roosting there through the fall months. On visiting the place later I could not start one, but found where an Owl, presumably, though of course not certainly, one of this species, had been roosting on a small branch about a foot from the ground. From the mound of pellets beneath this branch I sent twenty-nine to the Biological Survey for examination, the report from which showed the following mammals: (43 mice and 7 shrews): *Microtus pennsylvanicus*, 25; *Pitymys pinetorum*, 6; *Reithrodontomys humilis*, 10; *Peromyscus* sp., 2; *Cryptotis parva*, 7.—JAMES J. MURRAY, Lexington, Va.

The Short-eared Owl (*Asio flammeus flammeus*) in the District of Columbia.—The Short-eared Owl, which is one of our rarer Owls, has been reported in the District of Columbia only once in recent years, on the second of March, 1913. During the autumn of 1929, however, it appeared in several different localities in the vicinity of Washington, and at least three specimens were collected. The first of these was obtained by Norman D. Linn, on November 11, at Clarksville, in Howard County, Maryland; another was reported by Miss Ida Elizabeth Dickerson on Seneca Creek, near Dawsonsville, Maryland, on December 14; and a third by the writer on the twenty-seventh of November, in Rock Creek Park, an unusual place for this species.—JOHN COURTS JONES.

The Florida Barred Owl in North Carolina.—In an account of the bird life of North Carolina¹ Pearson and the two Brimleys in discussing the Barred Owl remark that "it is probable that the Owls of this species found in summer in the southeastern part of the State may, upon closer study, prove to be the southern variety known as the Florida Barred Owl, *Strix varia alleni* (Ridgw.)."

During a recent visit to the section known as Bayview, on the north shore of the Pamlico River near Bath, N. C., I obtained a female Florida Barred Owl thus substantiating the supposition of occurrence of this form in the state. The bird in question was brought to me by Fred Cutler on January 16, 1930, and is preserved in the collections of the National Museum. It shows in normal manner the lack of feathering on the toes that distinguishes this race. Barred Owls were common in this lowland area.—ALEXANDER WETMORE, National Museum, Washington, D. C.

Downy Woodpecker and Moth Cocoons.—I had tied out one each of *Attacus cecropia* and *Telea polyphemus* cocoons to a lilac bush. One day a Downy Woodpecker (*Dryobates pubescens medianus*) found them. He had already eaten the contents of the polyphemus cocoon, through a very small aperture, and was intently working on the cecropia when I

¹Pearson, T. G., Brimley, C. S., and Brimley, H. H., Birds of North Carolina, North Carolina Geol. Econ. Surv., vol. 4, 1919, p. 180.

interfered. Upon examination I found that he had bored the cocoon in such a way as to puncture the pupa just below the wing case in the soft abdominal region and had eaten a portion larger in circumference than the opening through which he worked, but he would not touch the still living pupa when I put it in the feeding tray nor when replaced in the cocoon.—LEWIS O. SHELLEY, *East Westmoreland, N. H.*

On the proper Name of the "Parauque."—In reading the item, "Proper Name of the 'Parauque,'" which occurs in the "General Notes" of the July Auk, I am struck with the probability that the "u" may have been erroneously intruded in the first place and that Sennett made the mistake of writing the Spanish words "Para que?" (i. e. "what for?")—as they sounded when pronounced in the Mexican patois, Pau-ra-que.

If the call of the bird is a three syllable call with a rising accent on the last syllable there would be little difference between "pow-rack-kee" and "pah-ra kay."

Webster's International gives the spelling "Parauque" but the accent is given "pa-roke" with a broad "a" and a long "o". This would not be Spanish pronunciation nor would it indicate an onomatopoeic word.

It seems quite likely that Sennett made the same sort of mistake that a Spanish ornithologist working in the United States would make who should write it "Wheep-poor-weel."—EDW. R. FORD, *Wilmette, Ill.*

Arkansas Kingbird (*Tyrannus verticalis*) on Long Island, N. Y.—An Arkansas Kingbird was seen at Long Beach, Long Island, N. Y., on September 23, 1928. It was seen also by Mrs. Carll Tucker, Miss Marcia Tucker, and Mrs. Baker. There were other reports of the species that month from scattered points in the New York—New England district.—JOHN H. BAKER, *1165 Fifth Ave., New York.*

Habits of the Rocky Mountain Jay (*Perisoreus canadensis capitalis*).—During a trip to the Rocky Mountain region of Colorado in September, 1928, I made a trip to Echo Lake, 10,600 feet, some fifty miles west of Denver. This lake is at the foot of Mt. Evans, 14,450 feet, and surrounded by evergreen forests. Here I saw four of these Jays around a table at which two ladies were having their lunch. They had white grapes and were feeding the birds, and I observed them for about ten minutes. One grape at a time was offered the birds near the edge of the table. A Jay would fly down from an overhead branch, seize the grape without hesitation and with it in its bill fly to a tree to eat the prize. The lady would place another grape and a bird would descend and carry it away. Doubtless they would have accepted the entire supply of grapes had they been allowed them. Pieces of bread were offered but were not taken, grapes being preferred.

As I reluctantly left the spot one of the Jays followed me, and as I stopped it came down on a low branch and eyed me curiously at not over five feet. I felt highly favored.—CHARLES L. PHILLIPS, *Taunton, Mass.*

A Raven in Baltimore County, Maryland.—On November 8, 1929, a Raven was shot by Oliver B. Eckhart, at his home at Sunnybrook, Baltimore, Md., as it was feeding on a Pigeon. I did not hear of it until the 22nd and by the time I saw it the carcass had been dragged around and most of the body plumage stripped from the skin. The skeleton was however intact, and most of the wing and tail quills in position, while the bill and bristles at its base and the feet were in perfect condition.

I have been studying the birds of Maryland since 1880 and this is the first Raven I have come across although I am aware that they have been recorded from the mountains in the western counties.

On November 8, near my home, I saw a large bird flying over with a sailing and flapping flight which I supposed must be a Turkey Vulture although its outlines seemed different, and a day or two later I saw what I took to be the same bird. The idea of its being a Raven never occurred to me but this may have been the same bird that was shot by Mr. Eckhart. —FRANK C. KIRKWOOD, *R. 3, Monkton, Maryland.*

An Unusual Flight Manoeuvre of the Northern Raven.—While botanizing in the inland region of Holstensborg on the west coast of Greenland (1927) I had occasion to witness a clever flight manoeuvre of the Northern Raven (*Corvus corax principalis*). The Raven had aroused the wrath of a pair of Gyrfalcons (*Falco rusticolus islandus*) which were nesting in a nearby cliff, and was beating a hasty retreat accelerated by the repeated attacks of one of them.

It was flying toward the hill upon which I was standing and almost at my own level whereas the Falcon kept to a much higher altitude except when swooping down to attack. When the Raven had approached very near to my point of vantage (about thirty feet) the Falcon stopped its screaming and swept downward so swiftly that the air whistling through its wings could be heard distinctly. Much to my astonishment, just before it reached the Raven, the latter turned completely over on its back and glided upside down, with claws and beak extended toward the down-rushing Falcon. The birds met with a great confusion of sound and feathers only for a moment and then the Falcon flew skyward again. The Raven immediately righted itself and energetically made up for its small loss in altitude. That this defence manoeuvre was a normal tactic was shown by the Raven repeating the performance on three subsequent attacks.—CARL O. ERLANSON, *Botany Department, University of Michigan.*

Starlings in Western Illinois in Quantity.—It will be of interest to those who are recording the western migratory movement of Starlings to know that on September 21, 1929, a flock of black birds settled in the park lawn across from my home. Upon examining them with my glass, I found that sixty-three were Starlings. On more than a dozen other occasions I have seen individual birds or small flocks. Since winter has set in there have been Starling records every week. Just yesterday a

telephone call told of a flock of twenty-seven, one of which was caught and carried off by a Sharp-shinned Hawk, and on February 24, 1930, one was sent to me from Rutledge, fifty miles northwest of Quincy, by R. H. Ripperdam.

As yet I have been unable to record the nesting of this species in Adams County, but feel confident that with the increase in numbers as evidenced through the late summer and fall, I shall probably have this opportunity shortly.—T. E. MUSSELMAN, Quincy, Illinois.

Starling in Arkansas.—A European Starling, (*Sturnus vulgaris*) was observed on the University campus at Fayetteville January 25, 1930. The bird was secured for a specimen.

This appears to be the first record for Arkansas.—W. J. BAERG, University of Arkansas, Fayetteville, Ark.

The Starling in Kansas.—The first authentic record of a Starling in Kansas came to us this month in the form of a bird that was found frozen to death in a silo on a farm in Allen County, just west of the town of Bronson, Kansas.

A student of this institution, O. Ireland, brought it here February 10. It was found at his home about February 1, after an extremely cold spell. The bird is preserved in our collection in the form of a skin.—C. D. BUNKER, University of Kansas, Lawrence, Kansas.

Evening Grosbeak (*Hesperiphona vespertina*) on Long Island, New York.—While cooking lunch on the Long Island Sound beach, below the high sand banks of Wildwood State Park, Wading River, Long Island, on January 1, 1930, I heard a none too familiar whistle, and turned to see a pair of Evening Grosbeaks alight in the scrub growth above. The birds remained quiet, but watchful, while I clambered up toward them and examined them through glasses. Later they flew to the topmost twigs of a tall bare tree, where Mrs. Murphy and I watched them for some minutes.

The Evening Grosbeak has been recorded on Long Island before, though not for a considerable number of years. Moreover, in the visits of this species, "it never rains but it pours," and I suspect that this note will be but one of many sent in from the Eastern States.—ROBERT CUSHMAN MURPHY, American Museum of Natural History, New York.

Evening Grosbeak (*Hesperiphona vespertina*) at Cape May, N. J.—On January 14, 1930, an Evening Grosbeak was found dead in a garden in Cape May, N. J., by Mr. Otway H. Brown of that place. He gave it to Mr. H. Walker Hand for transmittal to the Academy of Natural Sciences. Although it had evidently been dead for some days, Mr. Hand was able to skin it and it is now preserved in our collection.

This is not only the first record for the bird for Cape May but apparently a farthest south record for the species in the East, since Cape May is a trifle farther south than Washington, D. C., which so far as I am

aware, formerly held this record.—WITMER STONE, *Academy of Natural Sciences, Philadelphia, Pa.*

Nelson's Sparrow (*Passerherbulus nelsoni*) at Waukegan, Ill.—While the type specimen of Nelson's Sparrow was taken in Cook Co., Ill., and a number of others have been secured in the same vicinity, it seems from all accounts to be much scarcer in recent years so that the capture of a specimen at Waukegan, Lake Co., Illinois, on October 13, 1929, seems worthy of record.—JAMES S. WHITE, 1114 Ardmore Ave., Chicago, Ill.

Clay-colored Sparrow (*Spizella pallida*) in South Carolina.—On October 27, 1929, the writer secured a specimen of the Clay-colored Sparrow (*Spizella pallida*), on a rice field bank bordering the Cooper River near Huger P. O., Berkeley County. The bird was on the ground and showed remarkable tameness; one foot was diseased, the middle toe being greatly enlarged. The bird was a male.

Mr. J. H. Riley, to whom the specimen was submitted tells me that there are apparently no previous records from the Atlantic seaboard. This is an addition to the fauna of South Carolina.—E. VON S. DINGLE, Huger, S. C.

Note on the Eastern Song Sparrows.—When Ridgway worked up the Song Sparrows for his 'Birds of North and Middle America' he recognized but one form, *Melospiza melodia melodia*, in the eastern United States. It has been known for some time, however, that this form, as currently accepted, is not constant throughout its extensive range, and no less than three names have been proposed for these variants. I have had occasion to go into this matter with some care in connection with my work on the birds of the Labrador Peninsula, and my conclusions may be briefly summarized as follows. True *melodia* (Philadelphia, Pennsylvania, accepted as type-locality) occupies the Atlantic watershed, reaching Newfoundland, Quebec, and Lake Ontario. *Melospiza melodia acadica* Thayer and Bangs is the same as *melodia*, in my opinion. The range of *Melospiza melodia atlantica* Todd is strictly littoral, and probably extends as far north as the eastern end of Long Island. West of the mountains is a recognizably different race, which is *Melospiza melodia beata* Bangs, the type of which was an accidental visitor to peninsular Florida. The westward range of *beata* remains to be worked out; it seems however, to be the form of the southern Alleghanies.

This note is published in advance at the request of the A. O. U. Committee on Classification and Nomenclature. A full discussion will appear in my report on the bird life of the Labrador Peninsula.—W. E. CLYDE TODD, Carnegie Museum, Pittsburgh, Pa.

Blue Grosbeak on Cape Cod, Massachusetts.—On October 13, 1929, a Blue Grosbeak (*Guiraca c. caerulea*) visited my banding station

at North Eastham. Inasmuch as the only previous definite record for Massachusetts is a male shot by Gordon Plummer at Brookline, May 29, 1880 (Allen, J. A., Bull. Nut. Orn. Club. Vol. V, 1880, p. 184), I collected the bird, which proved to be an immature male. The specimen is now in the collection of the Boston Society of Natural History.—O. L. AUSTIN, Jr., Orleans, Mass.

A Deformed English Sparrow.—On August 9, 1928, a wounded freak immature English Sparrow (*Passer d. domesticus*) was found by a gardener in Hamtramck park. The bird must have been struck by something, for there was a wound at the base of the skull, on the right side, where a patch of feathers about a quarter of an inch in diameter was missing.

It was in good immature plumage, quite fat, and seemingly in good health, and appeared not to have been hampered much by its deformity which consisted of the major parts of two additional legs joined together.

This extra deformed leg, which was immobile, came out on the right side, and crossed the rear end of the body at about a sixty degree angle inclined upward, and to the left. The backbone and rear part of the body were bent to the left, due to the deformity, and therefore the under parts were not soiled by the excreta. The deformity was feathered about normally. The knee was exposed and quite blood-shot, and may have been injured by the bird falling on it when wounded.—W. BRYANT TYRRELL, Cranbrook Museum, Bloomfield Hills, Mich.

Decrease of English Sparrow.—The English Sparrow (*Passer domesticus domesticus*), as indicated by the number captured, has rapidly decreased in Lakewood, Ohio, since 1925, 31 adults being trapped in 1929 as compared with 152 trapped in 1925, or a decrease of 80 per cent. The cause apparently has been the decrease in horse drawn vehicles and the consequent lack of horse droppings in the streets. Where all deliveries were formerly made with the horse there is at present one horse drawn vehicle only coming near my feeding station daily. The surviving Sparrows are obviously those capable of adapting themselves to new food habits, though observations indicate an infiltration in the fall of young birds of this species from farm districts where a larger proportion survive. In Lakewood the English Sparrow has ceased to be a factor in the decrease of our native birds. In fact the coincident increase of White-throated and White-crowned Sparrows and other small birds in open spaces in Lakewood and Cleveland is quite noticeable. The writer recently has found several instances where enthusiastic amateurs, in an effort to protect our native birds, have innocently been mistaking female White-crowned Sparrows, particularly the immature birds, for the alien English Sparrow. It would seem that in localities where this species is reduced about ninety per cent, further reduction with incidental danger to the native species, is not advisable. Of 182 adult and immature English Sparrows banded in

1928, one bird only was recaptured in 1929. This very small percentage of recaptures would either indicate that the mortality is unusually large or that the bird is a wanderer. The last inference of course agrees with its known success in establishing itself in new localities. I have obtained similar results from banding Starlings which we know are moving rapidly west and southwest.

Any possible effect which the increase of the Starling may have on the numbers of the English Sparrow is made uncertain by the increased use of the automobile which deprives the English Sparrow of his favorite food of partially digested oats. However at this station when a flock of immature Starlings appears the immature English Sparrows are conspicuously absent. The structure of the bills of the two species would seem to indicate lack of competition as to food, that of the English Sparrow being adapted to seed eating while the bill of the Starling is adapted for obtaining insects.

But as the young of seed eating birds feed mostly on insects there is competition as to food among the immature birds. While the immature English Sparrows captured at this station decreased from 424 in 1927 to 97 in 1928, the immature Starlings captured increased from 3 in 1927 to 25 in 1928.

It would be of interest to observe the interaction of the two species in localities, if any, where the house sparrow has not decreased in numbers.

The writer would be glad to obtain any information relative to the increase or decrease of the Starling or of the House Sparrow.—E. C. HOFFMAN, 1041 Forest Cliff Drive, Lakewood, Ohio.

Where do Cliff Swallows Place their Nests?—One of the writers of this note was reared in New York and observed birds principally in New York, New Jersey and Massachusetts. The other was reared in Ohio and observed birds principally in Ohio, Illinois and Michigan before coming to North Carolina. One contends that Cliff Swallows place their nests against the building next to the rafters facing to the outside. The other contends that these birds place their nests at the end of the rafters in the angle made by the rafter and the face board at the end of the rafters. Such nests would face inward.

While there is no money at stake we would appreciate the decision of the observers of these birds in various parts of the country. Is there a local difference in this habit? Is it a geographical difference? Or what is it?

In connection with nesting Swallows some one made the observation several years ago that Swallows preferred unpainted to painted buildings. We do not believe that this is true. On a farm in Ohio thirty or forty years ago Cliff Swallows nested on both sides of practically every rafter of a barn sixty feet long. In many places there were two story nests. At that time the barn was kept well painted and English Sparrows were kept in control by destroying their nests. Beginning about twenty years ago little effort was made to keep the buildings painted and the control of

the Sparrows was neglected. The number of Swallows decreased slowly until this last summer there were only three pairs nesting. There was in this case an obvious correlation between the number of Swallows and the number of Sparrows. Whether this was the only factor involved it is of course impossible to say.—DR. Z. P. METCALF and DR. L. H. SNYDER, *State College, Raleigh, N. C.*

Nesting of the Rough-winged Swallow in the Pocono Mountains, Pennsylvania.—On June 26, 1927, I found a Rough-winged Swallow's (*Stelgidopteryx serripennis*) nest with three fresh eggs, at South Sterling, Wayne County, Pa., right in the heart of the Poconos, at an altitude of about 2000 feet.

The nest was placed in an old partially excavated Kingfisher's burrow, eighteen inches deep, in the top of an almost perpendicular roadside bank, a few rods from the Wallenpaupack River, and in close proximity to such boreal birds as the Black-throated Blue, Magnolia and Blackburnian Warblers.

The birds were seen perched together on a telephone wire by the roadside near the nest.

The Rough-winged Swallow is generally supposed to nest almost exclusively in the Carolinian Zone, so I was naturally astonished to find it nesting in such boreal environment.—RICHARD F. MILLER, *Philadelphia, Pa.*

Late Nesting of the Cedar Waxwing.—In 'The Auk,' for January, 1930, Dr. James J. Murray of Lexington, Virginia, gives an account of the late nesting of the Cedar Waxwing (*Bombycilla cedrorum*) in the vicinity of Blowing Rock, North Carolina, at an elevation of 4,000 feet. The following note is quite similar.

During a stay at Mountain Lake, Giles County, Virginia, August 25, last year, I found the nest of a Cedar Waxwing (*Bombycilla cedrorum*) in a chestnut tree which was inaccessible. I did observe with glasses, however, the feeding of the young on several occasions. The altitude at Mountain Lake is approximately 4,500 feet, and the temperature on several nights was as low as 56°.—A. O. ENGLISH, *105 Granby Street, Norfolk, Va.*

Migrant Shrike (*Lanius ludovicianus migrans*) in New York in Winter.—On January 26, 1930, I secured a specimen of the Migrant Shrike, at Queens Village, N. Y. As there seem to be very few winter records for New York this seems worthy of publication.—JAMES BURGRAF, *Queens Village, N. Y.*

Winter Occurrence of Yellow Palm Warbler in Western Virginia.—On February 1, 1930, and again on February 13, I saw a single Yellow Palm Warbler (*Dendroica palmarum hypochrysea*) at the Big Spring Pond near Lexington, Va. On January 14, Prof. R. B. Carroll of the Virginia Military Institute had described to me a bird which he had just seen at

this place. From his description I would have judged it to be a Yellow Palm Warbler, and on these two dates I had a good view of what was probably the same bird and assured myself of the identification. On February 1 the bird was running about on thick masses of decayed and floating vegetation which cover most of the pond. The yellow of the underparts was very bright, and the bird wagged its tail constantly. The location where it was feeding was very similar to the swamp edges which I have seen them frequenting at this season in eastern North Carolina. On February 13 it was in the trees scattered in a pasture near the pond and uttered its sharp chip at short intervals. At times it was as much as forty or fifty feet from the ground, higher than I had ever seen this species go, although they regularly frequent small trees on their migrations in this section.—JAMES J. MURRAY, *Lexington, Va.*

Sycamore Warbler in Indiana in Early April.—While visiting Turkey Run State Park, Parke County, in western Indiana on April 4, 1929, I was surprised to find a Sycamore Warbler (*Dendroica dominica albilora*) in full song in the sycamores bordering Sugar Creek. This seems to be an unusually early date for the presence of this bird so far north, for the earliest recorded by Amos W. Butler in his 'Birds of Indiana' (1897) is April 14, 1888, and that is for Terre Haute, some twenty or thirty miles south of Turkey Run.—A. SIDNEY HYDE, *Department of Zoology, University of Ill., Urbana, Illinois.*

Maryland Yellow-throat in Pennsylvania in Winter.—Mid-winter records of the Maryland Yellowthroat (*Geothlypis trichas*) in the Middle Atlantic States are rare enough to warrant placing on record an immature male of this species observed on January 1, 1930, at Glenolden, Delaware County, Pa., by the undersigned. Satisfactory views with binoculars were obtained at close range.

The bird was first detected in a dense honeysuckle tangle, and was later seen in an alder swamp close by, from which it departed with a small flock of Slate-colored Juncos and Tree Sparrows. We do not know of any previous mid-winter record for this species in Pennsylvania.—MABEL and JOHN A. GILLESPIE, *Glenolden, Pa.*

Connecticut Warbler at Philadelphia in Spring.—Two Connecticut Warblers, male and female, spent the morning of May 24, 1927, in the vicinity of my home. They moved about in a thick tangle of rambler rose and in low bushes growing in soggy ground. By afternoon they had disappeared. Until I learned of the observation of this species at several other places east of the Alleghanies, in spring, I hesitated to offer the record for publication, but the care and time I gave to the study of my birds thoroughly convinced me as to their identity and I publish the note now at the suggestion of Dr. Witmer Stone.—EDWARD WEYL, *6506 Lincoln Drive, Philadelphia, Pa.*

Mockingbird Nesting in Pennsylvania.—A belated record for the nesting of the Mockingbird (*Mimus polyglottos*) in Folcroft, Delaware County, Pa., is herewith presented. A nest, with young, was found by the writer on June 4, 1921, in a pear tree, about six feet from the ground. The fledglings left the nest on June 11 and were seen on several occasions subsequently. Through an oversight on the part of the writer, this nesting record, which is rather unusual for Pennsylvania, was overlooked.—JOHN A. GILLESPIE, *Glenolden, Pa.*

A Mockingbird at Plainfield, N. J.—On the morning of December 6, 1929, there being some snow on the ground, I threw the customary bread crumbs under the shelter of a lilac bush for the benefit of the birds. The Starlings came at once to the feast and my sister, who had been watching them, called my attention to a bird with a long tail perched in the bush. Almost at once I recognized a Mockingbird with the white in the wings and tail as distinguishing marks. By this time the bird had flown to a silver-berry bush at the foot of the garden and as he flew he gave us another view of his white wing patches and the white in the tail. I took my field glasses and followed him cautiously and finally came within fifteen feet of him. He seemed quite tame and turned his head several times to watch me. This gave me a splendid chance to examine him at close range and make identification certain. Finally an automobile making an unusual amount of noise passed and the bird flew into a neighboring garden and disappeared.

This is my first record for the bird in Plainfield although I have kept records for the past twenty-five years.—JOHN T. S. HUNN, *Plainfield, N. J.*

Short-billed Marsh Wren (*Cistothorus stellaris*) in Maryland.—While on a short collecting trip at Plum Point, Calvert County, Md., November 13, 1929, I was fortunate enough to discover a colony of at least eight birds of this species, three of which were taken. They were in an open marsh, almost a meadow, of several miles in area, just back of the shore of Chesapeake Bay. This spot is about thirty miles southeast of the D. C. line, and five miles south of Chesapeake Beach, airline, which is just outside of the Washington area. As far as I can ascertain, this is the first fall record for the region.—WILLIAM HOWARD BALL, *1861 Ingleside Terrace, N. W., Washington, D. C.*

Tufted Titmouse and Towhee at Madison, Wisc., in Winter.—On the morning of November 24, 1929, I saw two Tufted Titmice (*Parus bicolor*) feeding around my ground trap and flying back and forth to my window-ledge feeding stand. On November 28 and 29 and December 3 and 8, I observed one of these birds around my trap and on December 12, I was able to catch probably this same bird.

From November 10 to December 2, in spite of occasional zero weather, a male Towhee was feeding almost daily in my ground trap and apparently

seldom left the premises. Since the last date however I have seen nothing of him.—HENRY BUNTING, *Madison, Wisc.*

Song of the Gray-cheeked Thrush.—Aretas A. Saunders in his excellent handbook, 'Bird Song,' states (p. 51) that while most species of American birds sing in migration he has never heard the Gray-cheeked Thrush (*Hylocichla a. aliciae*) do so, although Bicknell and Gillespie have (Auk, vol. 1, p. 130; *ibid.*, vol. 44, p. 112). The Veery (*Hylocichla f. fuscescens*), he says, probably does not sing while migrating. In May 1929 I was lucky enough to hear both of these species singing in migration, although whether I was observing *H. a. aliciae* or *bicknelli* it was impossible for me to tell. On May 25 I found *H. aliciae* singing in four well-separated places in Germantown, Pa., and two days later an individual was heard singing and was seen by me in one of these places. One of the things I noted down at the time, ignorant of Gillespie's similar comment, was "an emphasis suggesting the White-eyed Vireo." The voices had not the full strength of Bicknell's Thrushes which I have heard during the breeding season but were about equal to the half-voices of the Olive-backed Thrushes whose singing in migration I have noted for three successive years (May 14 to 22, 1927; May 13 to 27, 1928; May 14 to 25, 1929). Philip A. Livingston and the writer heard a Veery singing in the Choptank Swamp, near Henderson, Md., on May 5, 1929. It was a mere shadow of the song given on the breeding grounds and was repeated four or five times only. Though we were moderately close to the singing bird the song was hardly more than barely audible. C. Eliot Underdown on May 12, 1929, in Carpenter's Woods, Germantown, Pa., heard a Veery singing before daybreak.—EDWARD S. WEYL, 6506 Lincoln Drive, Philadelphia, Pa.

The Song of Bicknell's Thrush: A Correction.—It is often a duty, though seldom a pleasure, to correct one's own mistakes. It is sometimes a duty to correct the mistakes of others, but though there are occasions when one takes an unholy, if also uncomfortable, pleasure in so doing his duty, on the whole one is tempted to shirk such duties if possible. When, however, an error is perpetuated by being quoted as fact, it is clear that one ought to do what he can to stop it in its mad career through the literature.

The third volume of Edward Howe Forbush's 'Birds of Massachusetts,' in treating of Bicknell's Thrush (*Hylocichla aliciae bicknelli*) says, under the head of voice, "Song, like that of the Olive-backed Thrush, but once in the course of five or six repetitions, a flute-like *per-pseueo-pseueo* is interpolated," and cites William Brewster as authority. This is a good paraphrase of Mr. Brewster's own description in the 'Bulletin of the Nuttall Ornithological Club,' (January, 1883, Vol. VIII, pp. 14, 15), which reads: "The song of Bicknell's Thrush is exceedingly like that of Swainson's; indeed, to my ear, the usual strain, though rather feebler, was

nearly indistinguishable; but occasionally—perhaps on the average once in the course of five or six repetitions—a peculiar and apparently perfectly characteristic bar was interpolated. This was a flute-like per-pseuëo-pseuëo given quickly and in a tone which, at a little distance, closely resembled that of the Solitary Vireo's well-known voice."

Mr. Brewster's notes were made on Mt. Washington in New Hampshire in 1882. I first made the acquaintance of Bicknell's Thrush on June 28, 1888, when I ascended Mt. Lafayette in the Franconia Range of the White Mountains in company with Bradford Torrey. In my journal, under that date, I find the following: "Mr. Torrey was the first person to suspect the presence of *T. aliciae* in New England in the breeding season. He induced Mr. William Brewster to investigate, with the result that *T. a. bicknelli*, which had just been discovered by Mr. E. P. Bicknell in the Catskills, was also found to exist in the White Mountains. Mr. Torrey says that the song which Mr. Brewster describes in his article in the 'Bulletin of the Nuttall Ornithological Club' as that of *T. a. bicknelli* and which he compared to *T. u. swainsoni*'s song, was not *bicknelli*'s at all but a peculiar song of *T. u. swainsoni*'s, which Mr. Brewster himself afterwards found to be the case."

Of course, this acknowledgment on Mr. Brewster's part came to me not directly, but through another, but no one familiar with Bradford Torrey's accurate habit of mind would question his statement. And also, no one familiar—as I have been for many years—with the song of Bicknell's Thrush would reject the possibility that the equally accurate William Brewster had, in this one case, failed to associate the song he heard with the species that actually uttered it. It is unfortunate that Mr. Brewster never explicitly corrected his error, but he virtually corrected it when, in the second edition of H. D. Minot's 'Land-Birds and Game-Birds of New England,' in his own formal life-history of Bicknell's Thrush, he omitted all mention of any song resembling that of the Olive-backed Thrush and simply stated, "The song is exceedingly like that of the Veery, having the same ringing, flute-like quality; but it is more interrupted, and it ends differently,—the next to the last note dropping a half tone, and the final one rising abruptly and having a sharp emphasis."

It is equally unfortunate that Mr. Forbush did not content himself with quoting this well-considered statement, published in 1895 after Mr. Brewster had become better acquainted with the bird than he was in 1882, and omit the earlier, and, as it proves, incorrect description. He does quote the later description, but lets the earlier stand, and remarks, "To my own ear the songs of the Veery and the Olive-backed Thrush have little in common and if that of Bicknell's Thrush closely resembles both, it must be quite variable." The song is, indeed, somewhat variable, but it is safe to say that, with the possible exception of some freak case of mimicry, its variations never approach very near so utterly different a song as that of the Olive-back.

Perhaps I have set myself a hopeless task in trying to correct an error of observation made by the greatest field ornithologist that New England has ever had and perpetuated by the author of a book that will long stand as the great compendium of New England ornithology, but I have done my little best.—FRANCIS H. ALLEN, *West Roxbury, Mass.*

Dickcissel and White-winged Dove on Long Island, New York.—*Spiza americana*. DICKCISSEL.—On October 16, 1929, I caught a Dickcissel, at Speonk, in one of my bird banding traps, together with a Swamp Sparrow. The trap was located in a small swamp about ten feet from water. Mr. Ludlow Griscom in 'Birds of the New York City Region' states that the last Dickcissel was taken on Long Island in 1890. I believe this is the first record for the Island since that date. The skin is now in my collection.

Melopelia asiatica. WHITE-WINGED DOVE.—On November 14, 1929, I collected a White-winged Dove at Watermill. I first saw the bird at 2:30 P. M. when it flew directly across the road in front of my car, giving me the impression that it was a Mockingbird because of the white on the wing and tail. At 3:00 P. M. when returning on the same road I again noticed the bird, this time about one half mile further west and clearly saw it was no Mockingbird. The bird was standing by the side of the road and flew up when I approached. It alighted in a nearby tree and shortly flew down into the road to get a drink out of a small pool of water. I closely examined the bird through 8 power glasses, my first impression being that it was an albino Mourning Dove. But after further study of the bird I came to the conclusion that there was a remote possibility of its not being a Mourning Dove, but a rare bird. So I accordingly collected it. The body was sent to the American Museum of Natural History where it was sexed by Dr. Chapin. It proved to be a female. It was in excellent condition, the crop containing 513 kernels of rye. Mr. Lee S. Crandall of the New York Zoological Park said that they had lost no White-winged Doves, in fact they had had none for several years. He knew of no one who might have had any. It is a new bird for New York and I believe has never been taken east of the Mississippi, north of Florida. The skin is in my collection.—LEROY WILCOX, *Speonk, L. I., N. Y.*

Some Recent Notes from Coastal South Carolina.—*Sturnus vulgaris*. STARLING.—Has at last made its appearance in the city of Charleston, S. C. For some years it has been an uncommon winter visitor to the coast of South Carolina, although a permanent resident and breeder about sixty miles inland. Its appearance in the city has been awaited as a natural consequence as it has been seen in the country districts since late in 1920.

The city birds were seen on January 24, 1930, along the driveway of Hampton Park, well within the limits and in a purely residential section. There were eight birds in low trees along the drive, and they were approached

to within thirty or forty feet. The writer was accompanied by Mr. E. Milby Burton and the identification was almost simultaneous. The further results of the invasion of the city by the Starling will be noted with interest.

Oidemia americana. AMERICAN SCOTER.—Has always been rated as an accidental visitor in South Carolina waters, there being but three records until December, 1929, when Mr. E. Milby Burton, together with three companions, shot several of these birds in the Cape Romain region, near McClellanville, S. C. The majority of the birds were females, but a number of drakes were in the bag, Mr. Burton bringing nine to the city. He states that there must have been several hundred in the flocks seen in Bull's Bay during the time they were in the vicinity. The presence of such numbers of these birds may have been caused by the cold wave which visited the South Carolina coast about the middle of December.

Former records for the American Scoter are: One taken in Charleston Harbor by Henry Hunter in 1884; seven seen off Seabrook's Island by the writer and Francis M. Weston in January 1929; one taken on John's Island by Isaac Grimball in April 1929.—ALEXANDER SPRUNT, JR., *Charleston Museum, Charleston, S. C.*

Unusual Winter Records from Southern Georgia.—During a trip to southern Georgia and along the Georgia coast with Norman Giles, Jr. I was surprised to find several species of birds wintering this far north, and believe on further investigation, with more time, that we might have found others.

Rynchops nigra. BLACK SKIMMER.—About 85 birds were seen on December 28, 1929, on St. Simons Island, resting on the sand, then circling about, and later feeding along the crests of the waves. A. H. Howell in 'Birds of Alabama' mentions this bird as being "common along the coast beaches both in summer and winter" so it is possible that we may find it a permanent resident along the Atlantic coast of Georgia.

Catoptrophorus semipalmatus semipalmatus. WILLET.—On December 29, two birds were seen by us on St. Simon's Island, near Brunswick.

Actitis macularia. SPOTTED SANDPIPER.—On December 31, one bird was seen at close range on a projection of the bridge in the Frederica River between Brunswick and St. Simons Island.

Iridoprocne bicolor. TREE SWALLOW.—This species was seen on December 27, in Wayne County which is in the interior of south Georgia, on December 30, in Camden County in the extreme southeastern part of the state on the coast, December 31 in McIntosh County on the coast and in Liberty County on the coast, and on January 1, 1930, on Colonels Island in Liberty County and as far north as Chatham County, near Savannah. Howell says "a few remain all winter on the Gulf Coast" in his 'Birds of Alabama.'

Mniotilta varia. BLACK AND WHITE WARBLER.—One bird observed at close range on December 26, 1929, near Lumber City in Telfair County.

One bird observed on January 1, 1930 on Colonels Island in Liberty County on the coast.

Dendroica dominica dominica. YELLOW-THROATED WARBLER.—One bird seen on Colonels Island in Liberty County on January 1, 1930. This species will probably prove to be a permanent resident.

Poliophtila caerulea caerulea. BLUE-GRAY GNATCATCHER.—One bird observed on Colonels Island in Liberty County on January 1, 1930. Known to winter along the Gulf and in Florida, and to be one of our earliest migrants in northern Georgia, it is likely we shall find this species a permanent resident in parts of southern Georgia.—EARLE R. GREENE, *Atlanta, Ga.*

Notes from Florida.—The following notes of interest on Florida birds have come to my attention recently.

Polyborus cheriway. AUDUBON'S CARACARA.—Messrs. J. C. Howell, Jr. and Wray M. Nicholson, of Orlando, Florida, discovered a nest containing one infertile egg and a half-grown young, on January 12, 1930. It was situated in a palm, on the prairie about two miles east of the St. Johns River, and some thirty miles due east of Orlando, and constitutes the most northern breeding record for Florida. So far as now known the bird breeds from Brevard County, about twelve miles southwest of Titusville, south at least to the prairie region west of Fellsmere and just east of Everglade, Collier County; also in the central part of Florida as far north as Canoe Creek, Osceola County.

Grus mexicana. SANDHILL CRANE.—A very early breeding record was a set of two eggs collected January 10, 1929, taken on the Kissimmee Prairie, Okeechobee County. About eight years ago I had a set brought to me that had been collected four miles from Orlando on January 28.

Aramus giganteus. LIMPkin.—Mr. Henry Redding has informed me that he found a nest containing two eggs on December 29, 1927, and on February 14, 1928, he found a nest in which the young had hatched. These are very early records.—DONALD J. NICHOLSON, *Orlando, Florida.*

Some Unusual Bird Records from Isle Royale, Michigan.—While working on Isle Royale during August and September, 1929, for the State Biological Survey, I was surprised to find one specimen each of the following species: Scarlet Tanager, Mourning Dove, Red-headed Woodpecker, Yellow-billed Cuckoo, Cowbird, and—most wonderful of all—a Mockingbird, an immature bird taken at Tobin's Harbor at the northeast end of the Island on September 26. It was no doubt a migrant from the Canada shore thirty miles to the north. The Red-headed Woodpecker was taken on Passage Island three miles northeast of Isle Royale by Mr. Brown on September 28. He is the Assistant at the "Light," and said it was the first one seen on that island. It doubtless came from the Canada shore, as none were seen on Isle Royale until September, 1929, when two were noted by Mr. Adolph Murie on the north side. He took an American Three-toed Woodpecker there on October 4.

A few Harris's Sparrows were noted on September 28 by Dr. Walter Koelz on the north side, and the writer saw several Clay-colored Sparrows on August 23 at Tobin's Harbor. All of the above, except the last-named species, are new to the bird list of the Island. Specimens of the Evening Grosbeak were taken at Tobin's Harbor on August 5, and on the north side of the Island on August 8, by Mr. Adolph Murie. Adult and juvenile birds were taken and no doubt the species bred there. The State Survey will be continued next year and other rare species will no doubt be found.—NORMAN A. WOOD, *Ann Arbor, Mich.*

Late Nestings in Ohio.—On September 27, 1929, a workman while clearing a neglected pasture lot of briars, was surprised when three young Goldfinches (*Astragalinus tristis tristis*) flew to the ground near him. An investigation revealed that he had cut down their home. The nest was securely fastened to a stout brier about one and one-half feet from the ground. This dainty home was composed entirely of thistle-down except the inner lining of small tufts of wool. Externally the thistle-down was loosely woven in.

In 1928 while on field work two coveys of Bobwhite (*Colinus virginianus virginianus*) three or four days old, were seen on September 17. Another covey was seen on this same date in 1927. Nearly every day for several weeks, they were seen near the same localities where first observed. On September 27, 1919, a large covey, a few days old was seen. In each covey there were more than twelve little ones. The usual nesting season of the Bobwhite is the last of June or first of July.

The Mourning Dove (*Zenaidura macroura carolinensis*) nests as early as the latter part of March or the first of April if it appropriates an old nest for its home. In 1927 a late nesting was observed, when on September 1, two young, just hatched, were found in a pear tree. The frail nest was twenty feet above the ground.

When the summer birds were collecting for their fall migration a small Black-billed Cuckoo (*Coccyzus erythrophthalmus*) just able to fly, was noticed, on September 17, 1917. This young bird certainly could not have made a long journey.—KATIE M. ROADS, *Hillsboro, Ohio.*

Recent Notes from the Chicago Area.—*Surnia ulula caparoch.* HAWK OWL.—The authorities for the occurrence of this species in Illinois are Kennicott (Birds of Cook County, 1853-54), and Nelson (Birds of N. E. Ill., 1876, p. 117). The latter gives it as "a rare winter visitant" and adds: "Dr. J. W. Velie tells me that he obtained a specimen in Kane Co., Ill., the first of September, 1869." I do not know whether Dr. Velie's specimen still exists but I am inclined to think that it was destroyed in the Chicago fire.

Mr. Arthur Rueckert, of Field Museum of Natural History, told me a short time ago that he had shot a female Hawk Owl near Belden and Kostner Avenues, on the northwest side of the city of Chicago, on December

3, 1922. He had given the specimen to a friend who had since died. Mr. Rueckert has been kind enough to trace the specimen, secure it from the party who had it, and present it to Field Museum. It still bears his original label. Mr. Rueckert also reported seeing a Hawk Owl near Fullerton and Kostner Avenues, about a block from where the other specimen was taken, on November 27, 1928.

Passerherbulus nelsoni nelsoni. NELSON'S SPARROW.—The only records for this Sparrow in Indiana are given by Butler (Birds of Indiana, 1897, p. 948). They are the dozen specimens seen by Mr. Henry K. Coale near Berry Lake, Lake County, on September 25, 1875, and the ones Dr. A. W. Brayton reported taking in Lake County.

The N. W. Harris Public School Extension of Field Museum of Natural History has two specimens (Nos. 1578 and 1583), both females, taken on September 12 and 21, 1922, at Long Lake, near Dune Park, Porter County, Indiana, by Mr. E. J. Scupham.

It is of no little interest and importance to have some of these very old records, especially the ones without physical evidence, corroborated by recently taken specimens.—COLIN CAMPBELL SANBORN, *Field Museum of Natural History, Chicago, Illinois*.

Some Bird Records for Oklahoma.—The skins of two birds which proved to be records for Oklahoma were secured by me while in charge of a field party of the Oklahoma Biological Survey in the eastern part of the state. They were:

Sterna hirundo. COMMON TERN.—A solitary male seen and shot while flying over the Illinois River near Gore in Sequoyah Co., on July 3, 1929. Other individuals are reported by George Moore at Stillwater, Oklahoma, but he did not secure a specimen.

Chordeiles virginianus sennetti. SENNETT'S NIGHTHAWK.—A male was shot near Pawhuska, Oklahoma, on July 22, 1929. A number of individuals were seen sitting on fence posts near a paved highway. The country was a treeless prairie.

In addition to the above, Carolina Chickadees, (*Penthestes carolinensis carolinensis*) were collected at Kosoma, Pushmataha Co., June 24, and Miami, Ottawa Co., July 19, indicating that this is the breeding form in eastern Oklahoma.—R. D. BIRD, *Department of Zoology, University of Oklahoma, Norman, Okla.*

Notes on Jamaican Birds.—After comparing my notes with the publications of Bangs and Kennard (Birds of Jamaica) and Danforth (Auk, October, 1929) the following seem worthy of publication:

Protonotaria citrea. PROTHONOTARY WARBLER.—One seen at a distance of ten feet at leisure in the shrubbery at the edge of a small roadside pond several miles west of Black River, Jamaica, on February 28, 1928. Apparently this constitutes the first record for the species for Jamaica, its normal migration route being through Central America. I have however,

no hesitation in making the record as this and other Warblers with which it might conceivably be confused are familiar to me and the conditions under which it was observed were ideal.

Egretta thula thula. SNOWY EGRET.—Two seen with certainty on February 28, 1928, at the same pond west of Black River, Bangs and Kennard could find no record later than 1891 although they state that "formerly it appears to have been recorded as an occasional winter visitant."

Ionornis martinica. PURPLE GALLINULE.—Stated by Bangs and Kennard to be "probably a rather rare and local resident species for which we find no definite recent records." I, however, found it common in February, 1928, near the mouth of the Great River, just west of Montego Bay, but did not meet with it elsewhere.—JOHN H. BAKER, 1165 Fifth Ave., New York.

Notes on the Birds of St. Croix, U. S. V. I.—A recent report on the Birds of Porto Rico and the Virgin Islands (Scientific Survey of Porto Rico and the Virgin Islands, Vol. 9, Parts 3 and 4) by Dr. Alexander Wetmore has done much to bring up to date our knowledge of the birds of these islands. The following species, however, all of which breed on St. Croix, the largest of the Virgin Islands, were either not mentioned as occurring there, or, if mentioned, were regarded as doubtful residents.

I must thank my friend, Mr. Harry A. Beatty, a local naturalist, living at Christiansted for what success I had during my short stay on the island, July 8 and 9, 1929, and might add that Mr. Beatty possesses an almost complete and nicely prepared collection, representing some thirty-five species, of the eggs of the birds of St. Croix, as well as some very interesting mounted specimens of birds taken on the island.

Dafila bahamensis bahamensis. Apparently a rare resident. They are known on St. Croix as "Brass Wings."

Buteo borealis jamaicensis. Several observed. Mr. Beatty believes there are about fifteen pairs on the island. Curiously enough the West Indian Red-tailed Hawk has not previously been recorded in life from St. Croix.

Colinus virginianus. Not uncommon. I heard the Bob White on numerous occasions at points widely separated and secured a specimen, an immature bird, from a covey of six, the subspecific identity of which I cannot positively determine.

Fulica caribaea.—Observed in a large mangrove swamp. The Caribbean Coot has been considered a doubtful resident of St. Croix.

Mr. Beatty secured eight North American Coots (*Fulica americana*) about a month before my arrival. He tells me they were much wilder than the resident birds. Coots belonging to this species occurring in the West Indies are in my opinion all North American migrants. I recently made an effort to locate *Fulica americana grenadensis* Riley at the type locality, Isle de Rhonde, Grenadines. The fresh water pond on this island had however completely dried up, but Coots seen and collected at Lake Antoine, Grenada were *caribaea*, a bird which in spite of its resem-

blance to *americana* can readily be distinguished in the field by its wholly white shield which is almost beacon-like in its brilliancy. The more swollen frontal shields of specimens regarded as *grenadensis* are due, I believe, to proximity of the breeding season.

Elaenia martinica riisii. Common and widely distributed on St. Croix, though according to Mr. Beatty the bird did not put in an appearance until about 1920. It is not recorded from the island by Wetmore. Dr. Danforth of the University of Porto Rico, tells me that he collected this bird some time ago on St. Croix. I myself collected one specimen.

Progne dominicensis. A number observed at Fredericksted where they were evidently nesting.

Mimus polyglottos orpheus. A local resident on St. Croix, which, according to Mr. Beatty, arrived on the island about the same time as *Elaenia martinica*.—JAMES BOND, *Academy of Natural Sciences, Philadelphia*.

Egg Weights and Measurements—A Correction.—I am indebted to Dr. Harrison Lewis of Ottawa in that he has called my attention to a mathematical error in my recent paper on egg weights and measurements (*Auk*, Oct., 1929), where, on page 470 it is stated that a loss of 61% in specific gravity occurs in an unincubated unspoiled egg after thirty days. It should read 5%,—W. H. BERGTOLD, *Denver, Colorado*.

RECENT LITERATURE.

Forbush's 'Birds of Massachusetts and Other New England States.'—The third and concluding volume of this notable work,¹ covering the Passerine birds from the Sparrows to the Thrushes, is before us, and probably no better praise can be awarded it than to say that it fully maintains the high standard set by its predecessors. While all will regret that the author and artist who began this great undertaking could not have lived to see its completion, we owe a debt of gratitude to their successors who have so carefully carried out their ideas.

The text was, as a matter of fact, practically finished before Mr. Forbush's death and only the account of the Wild Turkey and of four species which have been added to the fauna since the work was started, remained to be prepared by Dr. May. It is no small task, however, to edit and put such a volume through the press and this Dr. May has done with absolute fidelity to the plan laid down by his predecessor. Of the plates Mr. Fuertes had prepared only seven of those required for this volume, leaving twenty-four to be done and these have been admirably executed by Major Brooks.

The book as completed stands out as the leading modern work on the birds of the Eastern United States and satisfactorily covers a wide range of country outside of New England, of which it primarily treats.

The importance of the aid that the Commonwealth of Massachusetts has given to bird study and bird protection by making such a work available to all, at an almost nominal price, cannot be overestimated. All too frequently the stock of a Government publication is exhausted almost as soon as it appears and it can then be obtained only from second hand dealers at exorbitant prices, but the 'Birds of Massachusetts' will apparently be available for a long time to come as we understand that the two earlier volumes have already had several printings.

Dr. May has added, as a preface to volume three, an excellent and sympathetic biography of Mr. Forbush to whom no finer memorial could have been erected than this notable "bird book" which he conceived and so admirably carried practically to completion.—W. S.

¹ *Birds of Massachusetts and Other New England States*. By Edward Howe Forbush. Part III Land Birds from Sparrows to Thrushes. Illustrated with Colored Plates from Drawings by Louis Agassiz Fuertes and Allan Brooks and Figures and Cuts from Drawings and Photographs. With a Biographical Sketch of Edward Howe Forbush by John Richard May. Issued by authority of the Legislature, 1929. Massachusetts Department of Agriculture. Dr. Arthur W. Gilbert Commissioner. Price \$5.00. (Vols. I and II may still be obtained at \$5.00 each. All orders should be addressed to the Secretary of the Commonwealth, Room 118, State House, Boston.) Pp. i-xlviii + 1-466; pl. 63-93; frontispiece portrait; figs. 68-97; 17 distributional maps and 23 text figures.

Bates' 'Handbook of the Birds of West Africa.'¹—Since the time of Paul DuChaillu, West Africa has held a foremost place in the interest of naturalists. The DuChaillu collections, still preserved in the Philadelphia Academy, have been the basis of ornithological study of the region and furnished John Cassin with the material for his classic papers on the birds of the Gaboon region, published some eighty years ago.

Next to DuChaillu and Cassin the name most closely associated with the birds of West Africa is that of George L. Bates, whose long residence in Cameroon has made him the authority on the birds of the region, and whose collections have enriched the African series in the British Museum, the Philadelphia Academy and other institutions. It was the pleasure of the reviewer, a good many years ago, to show Mr. Bates the DuChaillu collections and the Cassin types when he was on a visit to America and it is therefore with a personal interest that he has perused this excellent 'Handbook' of the Birds of West Africa.

The work was prepared at the British Museum with its wealth of material always at the author's command, and it is therefore authoritative in every way. The nomenclature follows Scater's 'Systema Avium Aethiopicarum' in nearly every particular, while native names have been supplied from Mr. Bates' personal knowledge, for many of the species. The volume is strictly a handbook, with keys for the determination of genera and species, adequate though brief descriptions, and a paragraph on habits, etc. No authorities for the names are given and no reference to the original description nor to synonymy. While most of this information may be obtained from Scater's 'Systema' and was probably for that reason considered unnecessary in this connection, it would, we think, have been a great convenience to have had the reference to the place of description stated, especially since for probably many years to come the principal users of the work will be the technical ornithologists of the museums.

The species or typical subspecies (or else the Cameroon form) is given in larger type, while the allied subspecies appear in a smaller type below. There are generic diagnoses as well as many text figures.

The introduction contains an explanation of nomenclature and of the keys, a sketch of the physical features of West Africa and the character of its avifauna, as well as the several zoogeographical zones into which it may be divided, and a map. West Africa, as the author treats it, lies between lat. 20° and the Gulf of Guinea, reaching eastward to Lake Chad and south on the mainland to 2° north latitude covering all of the British possessions and practically all of Cameroon. The zones recognized by Mr. Bates are the Forest, Savannah, the Thorny Scrub and the Cameroon Mountains.

Although the total number of species of this area is not stated, we learn

¹ Handbook of the Birds of West Africa. By George Latimer Bates [etc. etc.] Illustrations by H. Grönvold, London, John Bale Sons and Danielsson, Ltd. 83-01, Great Titchfield Street, W. 1. 1930. Pp. i-xxiii, 1-572, map and frontispiece plate. Price 30 shillings net.

that in Cameroon alone there are upward of 670 which gives some idea of the richness of the fauna although according to the author it becomes richer as we proceed eastward, the bird population having apparently progressed from the east westward and he calls attention to the much poorer fauna of the extreme western part of West Africa.

All workers on African birds owe Mr. Bates a debt of gratitude for this excellent handbook which will prove of the greatest assistance in pursuing the study of the avifauna of this historic region.—W. S.

Priest's Guide to the Birds of Southern Rhodesia.—This little volume¹ published by the Government of the Colony of Southern Rhodesia is intended to stimulate interest in the study and protection of the birds of the country, especially among the children, and if generally distributed among the schools, as apparently intended, it will undoubtedly go far toward arousing such an interest.

The brief accounts of the species usually contain the most striking color features of the birds, while the general paragraph at the head of each group of allied species presents some of their habits. Unfortunately the method of description is not uniform and different terms are used in different descriptions which will confuse the young reader—i. e. sometimes the "feet" are described sometimes the "extremities" etc. The alphabetical method of arranging the birds is bad as it gives the reader no idea of relationship which he would unconsciously acquire if a systematic sequence were adopted. We find the Hobby Falcon under "F" while the Cuckoo Falcon is under "C" which breaks down even the alphabetical arrangement, while the Robin appears under "C" because it is treated in the "Chat" group. There would have been no need, moreover, for the long systematic list of names at the end if a systematic sequence had been adopted throughout.

The illustrations consist of fourteen colored plates from paintings by Mrs. I. Mount, which are sometimes too obviously from poorly mounted birds, and a number of crude outline drawings.

The object of this publication is most praiseworthy and it is regrettable, with so many popular bird books designed to attract the attention and interest of children and beginners, and based upon study and experience as to the best way to accomplish this end, that advantage was not taken of them as models in preparing this book and the value and power of a worthy publication thereby vastly increased.—W. S.

Saunders' 'Summer Birds of the Northern Adirondacks.'—It is fitting that a list of Adirondack birds should be published in the 'Roosevelt

¹ A Guide to the Birds of Southern Rhodesia and a Record of their Nesting Habits. By Captain Cecil D. Priest [etc. etc.]. With 14 Coloured and 112 Black and White Illustrations. London: William Clowes & Sons Ltd. Duke Street, Stamford Street, S. E. 1, by arrangement with the High Commissioner for Southern Rhodesia, Crown House, Aldwych, W. C. 2. 1929. pp. i-xix + 1-233. Price 17 shillings. Herald Book store, Salisbury, Southern Rhodesia.

Wild Life Bulletin' since the first publication on the subject, in 1877, was by Theodore Roosevelt and Henry D. Minot.

The present report¹ is based upon the results of two field trips by Mr. Saunders to parts of Essex and Franklin Counties, N. Y., in July and August, 1925 and 1926. There are detailed accounts of the two areas studied—the North Elba-Mt. Marcy Region, and the St. Regis Lake Region—with numerous photographs of scenery followed by a description of each of the 121 species of birds observed, and brief paragraphs treating of method of identification, voice, character of occurrence, and habitat, while numerous photographs of nests, eggs and birds serve as additional illustrations.

A supplementary section comments on the "Interrelation of Birds and Forests" and there is a bibliography, an index, and a map.

The Adirondacks are of interest to a large number of people—bird lovers and others, and Mr. Saunders' excellent report will be of much assistance to them in aiding their study of its bird life.

There are two colored plates by Edmund J. Sawyer depicting common birds of North Elba and of Timber Line on Mt. Marcy.—W. S.

Kirke-Swann's 'Monograph of the Birds of Prey.'—This excellent work is now being continued under the editorship of Dr. Alexander Wetmore and Part VIII² is before us. It covers the genera *Buteola*, *Asturina*, *Rupornis*, *Busarellus*, *Buteogallus*, *Urubitinga*, *Leucopternus*, *Urubitornis*, *Morphnus*, *Harpia*, *Harpyopsis* and *Pithecopaga*; while the two plates represent *Urubitinga urubitinga* and *Heterospizias meridionalis*.

In the account of *Urubitornis solitarius* mention is made of a specimen "sent to Mr. Todd" but as a matter of fact this specimen is, as he states in a foot note, the property of the Philadelphia Academy which also possesses another specimen obtained in Ecuador by Mr. Samuel N. Rhoads.

In the account of the Harpy Eagle there is no mention made of the nest or eggs but there is an account of a nest by J. P. Norris, Jr., published in the 'Oologists' Record' for June, 1927, which was found in Brazil and the eggs secured by James Bond and R. M. deSchauensee.—W. S.

Devincenzi's 'Birds of Uruguay.'—Dr. Devincenzi's excellent work³ on the birds of Uruguay is continued in the 'Anales' of the Museum of Natural History of Montevideo, the last instalment covering the Pelican-

¹ Roosevelt Wild Life Bulletin, Vol. 5, No. 3. The Summer Birds of the Northern Adirondack Mountains. By Aretas A. Saunders. September, 1929. Pp. 319-504. Price \$1.00.

² A Monograph of the Birds of Prey (Order Accipitres). By H. Kirke Swann. Edited by Alexander Wetmore. London: Wheldon & Wesley, Ltd. 2, 3, & 4, Arthur Street, New Oxford Street, W. C. 2. Part VIII. January, 1930. Pp. 429-487, two colored plates.

³ Aves del Uruguay Catalogo Descriptivo por el Dr. Garibaldi J. Devincenzi. Director del Museo. Anales del Museo de Historia Natural de Montevideo Serie II—Tomo III. 1929.

iformes, Accipitres and Cathartidiformes with half-tone plates of the species from mounted specimens, and outline drawings of the generic characters.

The work is well prepared and thoroughly up to date.—W. S.

Wetmore's 'Migrations of Birds.'—This admirable little volume¹ which was reviewed at length in 'The Auk' for 1927 (p. 127) has since gone through two additional printings and the last edition which is before us contains an index which adds greatly to the usefulness of the book, as it was often difficult to find a passage to which one wished to refer. We congratulate the author upon the deserved popularity of his work which should be in every well appointed ornithological library.—W. S.

Canadian Bird Cards.—Following the plan of the National Association of Audubon Societies the Canadian National Museum has issued an excellent set of sixty bird cards each containing a reproduction in colors of a painting by Allan Brooks and a short account of the habits of the species, with the technical name and the vernacular names in English and French. The other side of the card is left blank for message and address, being in the form of a postal card, which visitors at the museum may secure for mailing, or in full sets for preservation. The selection is well made and covers the whole range of Canadian bird families, the most familiar species being figured.—W. S.

Soper on the Breeding Grounds of the Blue Goose.²—After much preliminary experience on Baffin Island in the Canadian "far north" Mr. J. Dewey Soper was commissioned by the Department of Interior of Canada to locate if possible the nesting grounds of the Blue Goose, the location of which had at last been indicated by some of the Eskimos. Landing at Cape Dorset on the shore of the Foxe Peninsula, he proceeded along the coast of Hudson Strait and northward across the peninsula to Bowman Bay where he with two Eskimos remained until the following spring. On June 2, 1929, they saw the first Geese and by June 5 the maximum of the migration was reached. On June 26 the first eggs were found; by July 1 the birds were incubating and by July 20 young were found. Losing no time, after the desired specimens had been secured, the party started on July 24 by canoe for Cape Dorset which was reached on August 17 after a strenuous experience. A full account of the nesting habits of the bird will be published later.—W. S.

Lewis on the Double-crested Cormorant.—This admirable publi-

¹ The Migrations of Birds. By Alexander Wetmore, Assistant Secretary, Smithsonian Institution, Fellow, American Ornithologists' Union. Cambridge, Harvard University Press. 1930. Pp. i-viii + 1-229. Price \$2.50. Third Impression with index.

² Discovery of the Breeding Grounds of the Blue Goose. By J. Dewey Soper. Canadian Field Naturalist, January, 1930. Pp. 1-11, with title page cover, and foreword by W. W. Cory, Commissioner N. W. T.

cation¹ issued under authority of the Province of Quebec Society for the Protection of Birds, presents an exhaustive study of the Double-crested Cormorant based on personal experience, wide correspondence, and a study of the literature. The past history of the bird, so far as it can be traced, is anything but complementary to man. It was never a bird that attracted much interest or sentiment and consequently all sorts of bad habits were attributed to it, of which it was quite innocent. "For one reason or another or for no reason at all" says Mr. Lewis "the Double-crested Cormorants have been continually and persistently persecuted." They have been shot, their eggs destroyed, and young massacred in flocks. Indians today live on their meat and eggs and both old and young birds are used to feed sledge dogs and captive foxes. Many colonies in Canada are now protected but most of the depredations occur outside the sanctuaries.

A thorough study of the whole situation proves that the Cormorants are practically harmless. The only charge against them that can be substantiated is that they enter pound nets but this can be avoided by fishing with other nets and methods, as is fully explained, and if this is not feasible a control of the birds is all that is required not senseless extermination.

Beside the economic question Mr. Lewis' paper presents a mass of information relative to the life history of the Cormorant containing much that is new. The present remaining nesting grounds of the bird are in two distinct sections; one in Newfoundland, Nova Scotia, New Brunswick and Quebec and the other in the interior region of Lake Superior, Alberta, Minnesota, the Dakotas, etc., with an outlying colony on Great Salt Lake, Utah. Birds of the Atlantic colony winter on the coast from Long Island to Florida while the interior colony winters on the Gulf Coast from Texas to western Florida.

The habits of the birds, nesting, food, etc., etc., are described in a most interesting manner, and at length, and the paper constitutes a veritable monograph of this interesting if unattractive bird. While we rightly consider it as a "water bird" today, Mr. Lewis is of the opinion, from many pieces of evidence, that it was not so originally, but adopted its aquatic habit later in its history.

An excellent bibliography completes the paper, which will be our authority on the Double-crested Cormorant for many years to come.—W. S.

Jewett and Gabrielson on Birds of Portland.—This publication², constituting Pacific Coast Avifauna No. 19, is based mainly upon the per-

¹ The Natural History of the Double-crested Cormorant (*Phalacrocorax auritus* (Lesson)). A Thesis presented to the faculty of the Graduate School of Cornell University for the Degree of Doctor of Philosophy. By Harrison Flint Lewis. Ithaca, New York. May, 1929. Pp. 1-94. Price 75 cents. (Order from H. C. Miller, 175 Nepean St., Ottawa, Canada.)

² Cooper Ornithological Club. Pacific Coast Avifauna Number 19. Birds of the Portland Area, Oregon. By Stanley G. Jewett and Ira N. Gabrielson. Berkeley, California. Published by the Club, December 27, 1929. Pp. 1-54. Price \$2.00.

sonal observations of the authors in the vicinity of Portland, Oregon, as, curiously enough, very little seems to have been published on the bird-life of the city and its environs.

The area covered by the list covers parts of the valleys of the Columbia and Willamette Rivers, and Sauvie Island, and "forms a typical cross section of the Humid Transition Zone of Oregon." The 187 birds are divided into Residents 55, Summer Residents 43; Winter Visitants 33 and Transients 56.

The annotations cover distribution, records of rare species, migration and nesting data. The list will prove of great value as a work of reference and should stimulate study of the local avifauna by residents of Portland.—W. S.

Wetmore's Classification of the Birds of the World.—An outline of the classification of North American birds was prepared several years ago by Dr. Wetmore and the late W. DeWitt Miller for the new A. O. U. Check-List (Auk, 1926, p. 327). Dr. Wetmore has now extended this scheme¹ to include the birds of the entire world and the classification is carried down to families. It is very convenient to have this publication as interest in foreign birds is constantly increasing in America and our ornithologists naturally wish to know where the exotic families would come in our North American list. The fossil families are also included.—W. S.

Miller on Fossil Passeres from Rancho La Brea.—This is a report² on the remains of Passerine birds of the famous asphalt beds of California in the collection of the University of California. Ten families are represented by sixteen species but only eight are definitely identified specifically—the Horned Lark, Yellow-billed Magpie, Raven, Crow, Cedar Waxwing, Loggerhead Shrike, and Western Meadowlark, while one *Euphagus magnirostris* (p. 14), a Blackbird, is described as new. There were also remains of a Kingbird, Jay, Chickadee, Thrasher, Bluebird and Oriole.

Upon the evidence of present distribution of the species Mr. Miller infers that the Rancho La Brea fauna was Lower Sonoran.—W. S.

Zimmer on *Piranga flava*.—This paper³ presents an exhaustive study of the Tanagers formerly referred to several species, *testacea*, *hepatica*, *saira*, *azarae*, etc. It seems that *Saltator flavus* Vieillot is an older name for *Piranga azarae* d'Orbigny and also the oldest name for any of the forms concerned. In Mr. Zimmer's opinion all of these should be regarded as

¹ A Systematic Classification for the Birds of the World. By Alexander Wetmore. Proc. U. S. Nat. Mus. Vol. 76, Art. 24, pp. 1-8. January 8, 1930.

² The Passerine Remains from Rancho La Brea in the Paleontological Collections of the University of California. By Alden H. Miller, Univ. Calif. Publ. Bull. Dept. Geol. Sciences, Vol. 19, No. 1, pp. 1-22, plate 1. 1929.

³ A Study of the Tooth-billed Red Tanager, *Piranga flava*. By John T. Zimmer. Field Mus. Nat. Hist. Publ. 269 Zool. Series, Vol. xvii, No. 5. December 18, 1929. Pp. 169-219, plate 1.

subspecies, and he therefore recognizes thirteen subspecies of *Piranga flava*, one of which *P. f. albifacies* (p. 205) is here proposed as new.

Our North American Hepatic Tanager thus becomes *Piranga flava hepatica* while the northern race *oreophasma* separated by Oberholser he considers unwarranted.—W. S.

Meise on Bird Types in the Dresden Museum.—This is the first installment¹ of another of the catalogues of types which are now being put out by various museums and which are of the greatest benefit to systematic workers as they enable them to have comparisons made with type specimens the whereabouts—or even the actual existence—of which, they were in ignorance. The present paper covers the Crows, Birds of Paradise, Starlings, Orioles, Drongos, Shrikes and Swallow-Shrikes. Dr. Meise is to be thanked for undertaking this publication.—W. S.

De Schauensee on Siamese Birds.—As a result of an expedition to northern Siam, undertaken October 1928–January 1929, in the interests of the Academy of Natural Sciences of Philadelphia, Mr. de Schauensee secured a collection of 750 skins representing 255 species and the present paper² is a report on this material. The collecting was done mainly at Chiang Mai and Doi Soutep. Measurements of each species are presented with annotations regarding distribution, habits, and relationship. The new forms secured were previously described and have already been noticed in these columns. The paper is a valuable contribution to the ornithology of a comparatively little known section.—W. S.

Publications on Bird Banding.—Messrs. F. C. Lincoln and S. Prentiss Baldwin have prepared an excellent 'Manual for Bird Banders',³ in which is contained all the information that could possibly be desired concerning this phase of bird study. Methods, traps, cages, records, tools, etc., etc. receive careful consideration, while an abundance of illustrations assists in making everything clear. The pamphlet at once places in the hands of the prospective bird bander all the information that he will require to carry on the work and should stimulate many people, who may hesitate to take it up because they are uninitiated as to the procedure. It is published by the U. S. Department of Agriculture and may be secured from the Superintendent of Documents, Washington, D. C.

Another important step in the history of bird banding is the enlargement of the publication of the Northeastern Society and its support by two

¹ Verzeichnis der Typen des Staatlichen Museums für Tierkunde in Dresden, 2 Teil., Vogel I., von Dr. Wilhelm Meise. Abh. und Berichte der Mus. f. Tierk. und Völk. zu Dresden. Band XVII (1927–1929), December 30, 1929. Pp. 1–22.

² A Further Collection of Birds from Siam. By Rodolphe Meyer de Schauensee. Proc. Acad. Nat. Sciences, Phila. Vol. lxxxi, 1929. Pp. 523–588.

³ Manual for Bird Banders. By Frederick C. Lincoln and S. Prentiss Baldwin. Misc. Publ. No. 58. U. S. Dept. Agriculture. November, 1929. Pp. 1–112. Price 30 cents. (Supt. of Documents, Wash., D. C.)

of the sister organizations. The name of the journal becomes 'Bird Banding.' This move will centralize still further the activities of the bird banders and save a great amount of energy now expended on separate publications. (For notice of contents see p. 290).—W. S.

Publications on Game Birds.—Two recent publications of the Biological Survey, by W. L. MacAtee, deal with the propagation of game birds and should prove a great help to those engaged in this line of work. The time seems to be rapidly approaching when certain groups of game will be extinct so far an original wild stock is concerned and, if sportsmen wish to continue to shoot, a supply of game will have to be raised for the purpose. Therefore all information relating to this business is welcome.

The first paper¹ deals with the propagation of upland game birds and contains detailed instructions for enclosures, cages, breeding houses, etc., followed by specific information about Pheasants, Bobwhites, Hungarian Partridges, Grouse and Wild Turkeys.

In discussing enemies, while the use of pole traps for catching Hawks is discouraged and the hope extended that it will eventually be everywhere prohibited, as it has been in New Jersey, nevertheless considerable space is devoted to explaining how pole traps may be made less cruel and less likely to cause the death of smaller birds which alight upon them. It would seem to us, however, that the Biological Survey stands strong enough in the estimation of the public to take the lead in this matter and to state emphatically that pole traps should under no circumstances be used, that they are cruel and that they are likely to make the user liable to fine for killing smaller beneficial birds. Such a statement from such a source would go far to eliminate the obnoxious pole trap.

Mr. MacAtee's other paper² lists game birds suitable for introduction into this country. He recommends many species of Pheasants, Sand Grouse and Bustards but considers that the Red Grouse and Black Grouse are too dependent upon the presence of heather to make it possible to introduce them where the plant does not grow. The Wood Pigeon is regarded as likely to become a nuisance and its introduction is not advised. May not some of the others also become undesirable when it is too late to remedy the error? Introduction of any foreign species is a dangerous procedure and it would seem that the breeding of native birds were the better alternative.—W. S.

Stegmann on Birds of S. E. Transbaikal.—This excellent paper³ is based on the author's personal experiences and upon extensive collec-

¹ Propagation of Upland Game Birds. By W. L. MacAtee. Farmers Bulletin No. 1613. U. S. Dept. Agriculture. pp. 1-61, January, 1930. Price 10 cents, Supt. of Documents, Washington, D. C.

² Game Birds Suitable for Naturalizing in the United States. By W. L. MacAtee. Circular 96. U. S. Dept. Agriculture. November, 1929. pp. 1-23.

³ Die Vögel Süd-Ost Transbaikaliens von B. Stegmann. *Annuaire du Musée Zool. Acad. des. Sci. de l'Urss.* Pp. 83-242, pll. IV-IX

tions of others obtained in this region, first traversed by Pallas in 1772-3. There is a general account of the characteristics and the physical features of the country, a tabular list of species with their distribution in the several regions indicated, and finally a fully annotated list of 303 species with a bibliography and six half-tone plates illustrating the variation in plumage in *Hierofalco cherrug progressus*.

The publication forms a valuable contribution to the ornithology of a little known region.—W. S.

Wetmore's 'Ornithology' in Encyclopaedia Britannica.¹—In this day of abundant bird books the average student of ornithology does not ordinarily think of going to an encyclopaedia for a brief but at the same time comprehensive survey of the science. Doctor Wetmore's account in this recently issued work, however, so well summarizes the entire subject, and in such a readable manner, that we know of no other single digest that furnishes a comparable insight to the study of birds. In fact, the information compressed into this article may well be considered the meat of the information contained in an extensive ornithological library.

The introductory section is historical, beginning with the records left by Aurignacian man in France and Spain during the last Glacial Epoch of the Ice Age. From these early paintings and carvings man's notice of birds is traced through Egyptian, Hebrew, and Greek writings to the modern contributions that date from the middle of the 19th Century. "Ornithological Societies," "Bird Protection," "Economic Studies," and "Aviculture" are treated in this section.

"Types of Living Birds" are considered at some length, followed by a section on "Geographic Distribution." "The Avian Life-Cycle" is then taken up and traced through the courtship, nest-building, egg laying, and incubation periods. Here is given information on territory, mating performances, types of nest architecture, eggs, incubation periods, the temperature required, and parasitism.

Under "Post-Breeding Life" the discussion is devoted mainly to the change in feather covering by molt and the development of colors and pattern by wear.

"Migration" is treated at length, under the sub-headings "Superstitious Beliefs," "Theories of Origin," "Methods of Migration," and "Bird Banding," illustrative examples being used to bring out the salient features of each. Under "Songs and Calls," the entire range of bird notes is considered, from the practically silent vultures and pelicans to the finished music of the Mockingbird and the Nightingale. Reference is also made to mimicry and to the faculty for imitation of the human voice that is possessed by certain Parrots, Crows, Jays, Magpies, Starlings, and Mynahs. In the discussion of voice and also of the mechanics of flight, Doctor Wetmore

¹ Encyclopaedia Britannica: A New Survey of Universal Knowledge, Vol. 16, pp. 917-933. The Encyclopaedia Britannica Co., Ltd., London, Encyclopaedia Britannica, Inc., New York. Fourteenth Edition, 1929.

brings to bear his extensive knowledge of avian anatomy. In referring to the "Speed of Flight" he cites data that disprove the tremendous velocities sometimes credited to birds.

Under the heading "Food," the discussion extends from the herbivorous habits of such birds as the Ostrich and the Goose, through those that feed upon insects, seeds, and living prey to the scavenging habits of the Vultures, which are remarkable in that these birds "eat with impunity where death from poison from bacillary action would be the fate of another creature." Reference is made in this section to the storing habits of some birds, as certain of the Woodpeckers; to the remarkable pellet forming action of the stomachs of the Hawks, Owls, Albatrosses, Flycatchers, and Hummingbirds; and to the maintenance by human friends of nesting boxes and lunch counters, a practice that has had a rapid rise in popularity during recent years.

Two full pages are devoted to the presentation of a modern "Systematic Classification," in which the birds of the World are treated down to family. As an introduction to this section there are several interesting paragraphs on "Origin and Evolution," the progress of the avian group being traced from the earliest reptile-like *Archaeopteryx* and *Archaeornis*. Here Doctor Wetmore's extensive researches in the field of ornithological palaeontology are of inestimable value and are interpreted in a thoroughly readable and enlightening account. The article ends with a well-selected bibliography of the different phases of the subject.

The whole account is such an excellent survey of the great ornithological field that one could wish that separates might be made available for distribution to the constantly growing number of bird students, many of whom, more or less bewildered by the extensive literature of ornithology, would unquestionably welcome this digest of the subject. It is most fortunate, however, that Doctor Wetmore's article is available to anyone in position to consult the encyclopaedia. In this connection, it is interesting to recall that the ninth edition of the Encyclopaedia Britannica (1885) contained Alfred Newton's article under the same title. This essay, which was considered the most masterful treatment of the subject that had then appeared, formed the basis for the 'Dictionary of Birds.'—F. C. L.

Economic Ornithology in Recent Entomological Publications.—

Recent reports on bird enemies of insect pests that are of interest to ornithologists refer to the following:

Mormon cricket (*Anabrus simplex*).—This is the cricket that threatened the very existence of Utah settlers in early days, but which was checked in the midst of a most destructive invasion by flocks of Gulls. It was in commemoration of this event that the monument to Gulls was erected within the Mormon Temple Grounds in Salt Lake City. An account of these matters is given in a bulletin¹ on the cricket by Frank T. Cowan, who notes

¹ Tech. Bul. 161, U. S. Dept. Agr., 28 pp., 24 figs., Dec. 1929.

that the insect periodically causes more or less trouble to farmers in most of the States in the Rocky Mountain region. He gives (p. 21) a list of 19 species of wild birds known to feed upon the pest. In a State publication² upon the Mormon cricket also Mr. Cowan in collaboration with S. C. McCampbell, gives full credit to birds and says they "greatly reduce the cricket population, and deserve protection for this if for no other reason" (p. 11).

Pea aphid (*Illinoia pisi*).—In commercial pea growing areas this aphid causes an average annual loss of from 10 to 20 per cent of the crop. It has numerous natural enemies of which three birds, the Red-winged Blackbird, the English Sparrow, and the Chickadee are mentioned (p. 39) in a comprehensive bulletin² on the subject.

Pacific flathead borer (*Chrysobothris mali*).—One of the worst enemies of newly planted deciduous trees and shrubs on the Pacific Slope, the flathead borer is not greatly checked by natural enemies. The author of a recent bulletin³ on the insect says, however, that "Such observations as 'birds apparently have helped considerably in keeping *Chrysobothris* down,' and 'birds have dug out a great number of the insects, even from the pupal cells,' occur occasionally in field notes." (p. 26). No definite species of bird is associated with these records but the Biological Survey is quoted to the effect that 13 species of birds are known to feed⁴ on adult beetles of the genus *Chrysobothris*.

Chestnut curculios (*Curculio* spp., formerly called *Balaninus*).—It is not unusual for from 50 to 75 per cent of the nuts to be wormy, and in some experimental plantings the percentage of infestation reached 100. More than 80 kinds of birds, however, are known to feed on nut curculios⁴ and in Biological Survey work birds have been increased in one of the experimental chestnut orchards to such an extent that the infestation by the weevils has been materially reduced.

Tobacco cutworms (Twenty-two species).—Tobacco is a crop especially vulnerable to cutworm attack, and in a comprehensive bulletin⁵ on these larvae Mr. S. E. Crumb treats of the structure, classification, and natural history of numerous species of cutworms. Of avian enemies it is said that 88 species of southeastern birds feed upon cutworms and that during the month of May these larvae constitute an average of over 20 per cent of the food of several common birds (pp. 49–50).

Pandora moth (*Coloradia pandora*).—Thousands of acres of yellow pine have been defoliated by this insect in Oregon. The larvae and pupae are extensively eaten by Indians, and have many "natural" enemies also.

¹ Circ. 53, Colo. Agr. Exp. Sta., 28 pp., 10 figs., March, 1929.

² Fluke, C. L., Research Bul. 93, Wis. Agr. Exp. Sta., 47 pp., 2 figs., June 1929.

³ Burke, H. E., Tech. Bul. 83, U. S. Dept. Agr., 36 pp., 12 figs., Jan. 1929.

⁴ Brooks, Fred E. and Cotton, Richard T., Tech. Bul. 130, U. S. Dept. Agr., 23 pp., 6 pls., 1 fig., Aug. 1929.

⁵ Tech. Bul. 88, U. S. Dept. Agr., 179 pp., 9 pls., 19 figs., May, 1929.

Among these are birds, of which Steller's Jay and Vireos are said¹ to eat the larvae, and Creepers and Nuthatches the eggs (p. 17).

European corn borer (*Pyrausta nubilais*).—There is no need to comment on the seriousness of this pest, which despite great efforts and expenditures in fighting it, is now spreading over our maize growing region, doing great damage, and forcing drastic changes in farm practice. As a result of a study of the corn borer in Europe² much valuable information has been brought together by Messrs. K. W. Babcock and A. M. Vance, in which we find a little on the relation of birds to the pest. The species mentioned (p. 35) as preying upon the corn borer are Sparrows, Chimney Swallows, and Rooks.

Giant sugar cane borer (*Castnia licus*).—In Trinidad and northeastern South America this insect has developed into a serious enemy of cane, even exceeding in importance the small moth borers and froghopper, formerly regarded as pests of the first magnitude. In discussing the insect, Mr. H. Martyn Skinner, says,³ "Certain insectivorous birds are the principal natural enemies of *Castnia* in the adult stage, notably the 'kiskidee' (*Pitangus trinitatis*) and the 'boat-tail' (*Holoquiscalus lugubris*), the latter being very partial to the larvae also." These birds are protected, and encouraged by the erection of bamboo perches throughout the fields, latterly also by the establishment of bird reserves.—W. L. M.

Food Habits of *Tyrannus dominicensis vorax* in Barbados.—Mr. R. W. E. Tucker reports⁴ on the examination of 100 stomach contents of this Flycatcher which was suspected of being destructive to various beneficial insects. It was found that insects were the largest element of the food with fruits and lizards following in importance. The insects taken, however, were chiefly destructive forms and included larger numbers of the cane root borer and cane stem weevil, both important pests, than any other kinds. Only a few beneficial insects were taken and it is recommended that the bird be protected during a period when further investigations are made of its economic status.—W. L. M.

Economic Notes on Birds of the Malay Archipelago.—In a book by K. W. Dammerman on "The Agricultural Zoology of the Malay Archipelago" is a chapter (VII) on mammals and birds in which 25 pages (294-319) are devoted to sketches of the more important groups of birds with special emphasis on their economic status. The author is favorable to bird protection but notes that the native youths have much to learn in this respect. The most injurious birds are Weaver-birds of the genera *Ploceus* and *Munia* which damage rice and cane, the Flower-peckers (*Dicae-*

¹ Patterson, J. E., Tech. Bul. 137, U. S. Dept. Agr., 19 pp., 18 figs., Oct., 1929.

² Tech. Bul. 135, U. S. Dept. Agr., 54 pp., 10 pls., 3 figs., Nov. 1929.

³ Suppl. Tropical Agriculture, Jan. 1930 (1929), p. 6.

⁴ Tropical Agriculture, Vol. VII, No. 3, pp. 68-69, March, 1930.

⁵ J. H. de Bussy Ltd., Amsterdam, 1929, 473 pp., 40 pls., 179 figs.

um) which distribute mistletoe seeds, Crows which feed on maize, millet, and other crops, and Parakeets which destroy fruits, grains, and vegetable. A section of the bibliography (p. 409) is devoted to publications on birds, some of which are chiefly economic in character. Four species of birds are illustrated in color and seven in black and white.—W. L. M.

Shorter Papers.

Ashby, Edwin.—Notes on the Fauna of Dirk Hartog Island, Western Australia. Introduction and Aves. (*Trans. Royal Soc. South Australia*, LIII, 1929, pp. 54–61).—A briefly annotated list of twenty-one species.

Bancroft, Griffing.—A New Pacific Race of Gull-billed Tern. (*Trans. San Diego Soc. Nat. Hist.*, V, No. 19, pp. 283–286. December 10, 1929.—*Gelochelidon nilotica vanrossemi* (p. 284), Salton Sea, Calif.

Berlepsch, Hans von.—Twentieth and twenty-first Annual Report of the Seebach Station for Bird Protection.

Bowen, W. W.—A New Kingfisher from East Africa: First Preliminary Paper on Birds of the Gray African Expedition—1929. (*Proc. Acad. Nat. Sci. Phila.*, LXXXI, pp. 627–631. February 18, 1930).—*Halcyon albiventris prentissgrayi* (p. 627), Meru, Kenya Colony, with a discussion of the allied forms.

Bowen, W. W.—A New Nightjar from Angola: Second Preliminary Paper on Birds of the Gray African Expedition—1929. (*Proc. Acad. Nat. Sci. Phila.* LXXXII, pp. 1–2. March 14, 1930).—*Caprimulgus rufigena quanzae* (p. 1) Quanza River Valley, Angola.

Bradshaw, F.—Sage Grouse in Saskatchewan. (*Canadian Field Naturalist*, XLIII, No. 9, pp. 197–202. December, 1929.)

Dickey and van Rossem.—A New Attila from El Salvador. (*Proc. Biol. Soc. Washington*, 42, pp. 217–218. December 14, 1929).—*Attila spadiceus salvadorensis* (p. 217), Lake Oomega, Salvador.

Dickey and van Rossem.—A New Race of the Hairy Woodpecker from El Salvador. (*Proc. Biol. Soc. Washington*, 42, pp. 219–220. December 14, 1929).—*Dryobates villosus parvulus* (p. 219), Los Esesmiles, Salvador.)

Friedmann, Herbert.—The Forms of the Orange-breasted Bush-Shrike, *Chlorophoneus sulfureopectus* (Lesson). (*Occas. Papers Boston Soc. Nat. Hist.*, Vol. 5, pp. 251–253. January 20, 1930).—*C. s. fricki* (p. 252), Sadi Malka, Ethiopia; with a review of allied forms.

Griscom, Ludlow.—A Review of *Eumomota superciliosa*. (*Proc. New Engl. Zool. Club*, XI, pp. 51–56. October 31, 1929), *E. s. euro-austriis* (p. 54), Lancetilla, Honduras; *E. s. dickeyi* (p. 55), Copan, Honduras, and *E. s. vanrossemi* (p. 55), Sacapulas, Guatemala, are described as new. These are "localized" in valleys and in view of the great variation in color found in the group it would seem possible that some of them, at least, might be cases of individual variation. The reviewer had so regarded the Guatemalan form.

Griscom, Ludlow.—Notes on the Rough-winged Swallow (*Stelgidopteryx serripennis* (Aud.)) and its allies. (*Proc. New Engl. Zool. Club.* XI, pp. 67-72. December 14, 1929.)—*S. s. decolor* (p. 69), Divala, Chiriqui, Panama, and *S. s. psammochrous* (p. 72), Oposura, Sonora, are described as new.

Howell, Arthur H.—A Naturalist's Cruise on the Gulf Coast. (*The Florida Naturalist*, January, 1930, pp. 29-37.)

Kozlova, E.—Contributions to the Ornithological Fauna of Central Asia. (*Ann. Mus. Zool. Acad. Sci. de l'Urss.*, 1928, pp. 271-278.)—*Erythrura pucherrima* and its races. *E. p. crassirostris* (p. 272) described as new, Alashan Range. *Prunella kozlovi*, its races and biology, *P. k. tenella* (p. 275), described as new, from the Ulyasutai region.

Darcus, S. J.—Notes on Birds of the Northern Part of the Queen Charlotte Islands in 1927. (*Canadian Field Naturalist*, February, 1930.)—An annotated list of 92 species.

Larocque, A.—The Passenger Pigeon in Folklore. (*Canadian Field Naturalist*, February, 1930.)—French Canadian stories to the effect that the dried gizzards were used as a cure for gallstones and that a curse was put upon the birds on account of their depredations, which resulted in their extermination.

Lönnberg, Einar.—On our Knowledge of the 'Lipochrome' of Birds. (*Arkiv. for Zoologi K. Svensk. Vetenskaps Akad.* 21A, No. 11, 1930, pp. 1-12.)

McGregor, R. C.—Birds of the Philippines (*Distribution of Life in the Philippines*, Monograph 21, Bureau of Science, pp. 168-214, 1928.)—A general account and tabulated lists showing affinities with birds of the Australian and Oriental Regions.

Peters, J. L.—The Type Species of the Avian Genus *Harpiprion*. (*Occas. Papers Boston Soc. Nat. Hist.*, 5, February 24, 1930, pp. 255-256.)—Owing to Gray having designated *Ibis plumbeus* (= *caerulescens*) as the type he had no right to alter his designation later, and since current usage has followed his second designation a shifting of names becomes necessary; *Harpiprion* replaces *Molybdophanes* Reich., and Mr. Peters proposes *Mesembrinibis* (256) for the latter, with *Tantalus cayennensis* Gm. as type.

Portenko, L.—Reciprocal Relationship between *Emberiza schoenicla* and *E. pallasi*. (*Ann. Mus. Zool. Acad. Sci. de l'Urss.*, 1928, pp. 37-81.)—*E. s. pallidissima* (p. 46), eastern Siberia; *E. s. zaidamensis* (p. 66) Zaidam, central Asia, and *S. p. lydiae* (p. 78), Lake Orok-nor, are described as new.

Portenko, L.—On the taxonomic Value of the forms of the Palearctic Buzzards. (*Bull. Acad. Sci. de l'Urss.*, 1929, pp. 623-652 and 707-716.)—A careful study of the races with the description of *Buteo japonicus saturatus* (p. 644), from Kham in southeastern Tibet.

Stenhouse, J. H.—Some Birds of Historical Interest in the Royal Scottish Museum. (*Scottish Naturalist* No. 180, Nov.-Dec. 1929.)—I. Birds of the Voyage of H. M. S. Adventure and Beagle, 1826-1830. Speci-

mens representing 21 species, including seven apparent types or cotypes of Capt. P. P. King, described in Zool. Journal, 1827 and Proc. Zool. Soc., 1831.

Wetmore, Alexander.—Birds of the Past in North America. (*Smithsonian Report for 1828*.)—The number of fossil forms of birds now known from the world is only about 700 as against some 25,000 living forms. In North America there have been described 155, while 108 living species have also occurred as fossils.

Witherby, H. F.—A Guide to Some Ornithological Work. (*Trans. Norfolk and Norwich Nat. Hist. Soc.*, XII, Pt. 5, pp. 527-549.—Suggestions for research.

The Ornithological Journals.

Bird-Lore. XXXII, No. 1. January-February, 1930.

Pastoral—The Winter Rest. By Mabel Osgood Wright.

My Friends of the Sycamore. By Ben East.—Barn Owl nesting in Genesee County, Mich.

The Season gives an interesting summary of bird life at the usual number of districts while the thirtieth Christmas Census occupies most of the issue (48 pages), showing the interest in this feature and the constantly increasing number of observers. The largest list came from California while in the northeastern States Cape May, N. J., led with 74 species, the result of combined observations by members of the Delaware Valley Ornithological Club. The Bronx Club had a list of 93 but did not confine its observations to the prescribed 15 mile diameter. With the advent of the automobile the adoption of a definite limit is absolutely necessary if the results are to have any real value.

The Condor. XXXII, No. 1. January-February, 1930.

Spring Observations on Cranes in Fresno County, California. By Donald D. McLean.—Excellent motion pictures of the Little Brown Crane taken from blinds dug in the field occupied by the birds.

In Memoriam: Charles deB. Green. By Allan Brooks.

The Fossil Birds of the A. O. U. Check-List. By Alexander Wetmore.—A brief summary.

American Raptors and the Study of their Economic Status. By W. L. McAtee and H. L. Stoddard.—See p. 213 *antea*.

The Breeding Birds of Central Lower California. By Griffing Bancroft.—An excellent article with beautiful photographic illustrations of nests and eggs.

Notes on the Avifauna of a Transition Island in Napa County, Calif. By Harold W. Clark.

Methods of Trapping Birds. By Ernest D. Clabaugh.—Treated according to species.

An Abnormal Wing Development in a Pintail Duck. By Hildegard Howard.—Alleged regeneration of distal bones based on an assertion by

the owner of the bird that the end of the wing had been removed. No such regeneration in birds has ever been recorded as the author admits.

A Fossil Crane from the Pliocene of Kansas. By A. Wetmore and H. T. Martin.—*Grus nannodes* (p. 62).

In 'Notes from Field and Study' Dickey and van Rossem show that *Ortyx leucopogon* Less. is a distinct species from the Panama Quail to which the name has usually been applied and inhabits Salvador. The latter is redescribed and named *Colinus leucotis panamensis* (p. 73). The abortive crest in the Salvador bird seems to link *Eupsychortyx* with *Colinus* and the authors would unite the two.

The Wilson Bulletin. XLI, No. 4. December, 1929.

In Search of the Loon with Movie Camera. By O. J. Gromme.—Excellent illustrations.

On a Collection of Gyrfalcons from Greenland. By Walter Koelz.—Based on a series of 81 skins in the collection of the University of Michigan.—The author's treatment of the subject is at variance with that usually followed in systematic studies in-as-much as he regards it as "unfortunate that a subspecific name should be based rather on the population of a geographic unit than on a morphological form." He therefore recognizes in Greenland no less than three forms *rusticolus*, *islandus* and *candicans*. Such a treatment does not lead anywhere since it is pretty certain that the Gyrfalcon is dimorphic and if distinct names are to be given to possible members of a single family we should name our red and gray Screech Owls and other similar variants! However the paper is a valuable contribution to the study of Greenland Gyrfalcons and shows us what a tremendous variation they present.

Dr. Elliott Coues—A Sketch. By Mrs. H. J. Taylor.

The Florida Cormorant as Observed in Pinellas County, Florida. By W. G. Fargo.

Spring Bird Notes from Randolph County, Georgia. By Francis Harper.—An annotated list, based on observations made in 1921.

The Oölogist. XLVII, No. 1. January, 1930.

Marsh Birds of the Black Sloughs (Great Salt Lake.) By J. E. Sugden. Pennsylvania and New Jersey Nest Dates for 1929. By R. F. Miller.

Starlings in the Ozarks [Missouri]. By J. A. Neff.—December 19, 1929.

The Cardinal. II, No. 7. January, 1930.

Bird Notes from Presque Isle. By O. E. Jennings.

Notes from Pymatuning. By C. A. Bergstrom.

Washington on the Ohio.—Extracts from his journal in 1770, with mention of Turkeys and other birds and a description of the river.

An English Sparrow Foster Parent and A Vulture Nest. By B. H. Christy.

Hummingbirds and their Nests By Carl W. Schlag.

Cassinia. XXVII, 1927-1928.

A Study of Great Horned Owls in the Delaware City Heronry. By Benjamin C. Hiatt.

Delaware as a Hunting Ground. By J. D. Carter.

Fall Migration at Jeffersonville, Penna. 1916-1928. By R. J. Middleton.

Two Red Letter Field Days. By R. O. Bender.

Report on the Spring Migration for the Years 1927-1928. By J. A. Gillespie.

The Murrelet. XI, No. 1. January, 1930.

We have been criticised for noticing mimeographed journals since they do not constitute publication, but we have felt that there was so much good material in such a journal as 'The Murrelet' that ornithologists should be made aware of it, in order to be able to quote from it and possibly put important matter on permanent record elsewhere. If our action had anything whatever to do with the appearance of this publication in printed form we shall feel amply rewarded, for from now on the 'Murrelet' appears as a thoroughly legitimate and attractively gotten up publication!

Nesting of the Pacific Godwit. By Stanton Warburton, Jr.—In the Yukon Delta, Alaska.

The Pygmy Owl. By Allan Brooks.

Some Notes from the Oregon Coast. By Ira N. Gabrielson, S. C. Jewett and J. C. Braly.

Nesting of the Sharp-shinned Hawk. By J. H. Bowles.

Notes on the Relationships of Parasitic Flatworms to Birds and Mammals. By John E. Guberlet.—A trematode larva causing pop-eye disease in trout is probably identical with an adult worm found in the intestines of Kingfishers.

The Gull. XII, Nos. 1 and 2. January and February, 1930.

This organ of the Audubon Society of the Pacific continues to publish valuable notes on birds in the vicinity of San Francisco.

The Wren Tit. II, No. 1. January, 1930.

Bulletin of the Santa Clara Valley Audubon Society.

The Nest-pavement of the California Horned Lark. By Gayle Pickwell.—An interesting study. A tuft of grass grows nearly always on the south rim and the pavement around the north rim consists of little clods, cow-chips or flakes of sundried adobe, according to location.

The Flicker. [Mimeographed] Organ of the Minnesota Bird Club. Vol. II, No. 1. Jan.-Feb., 1930. Contains many local notes of interest and paper by Alden Risser on recollections of bird life at Wells, Minn., in the sixties.

The Raven. [Mimeographed.] Bulletin of the Virginia Society of

Ornithology. Vol. I, No. 1. January, 1930. Contains a number of daily censuses.

Bird Banding. I, No. 1. January, 1930.

Growth Rate of the Spotted Sandpiper Chick with Notes on Nesting Habits. By Theodora Nelson.—In six cases the male was proven to take over all the duties of incubation and brooding and no other adult was present. Many illustrations add to the value of this carefully prepared study.

Suggestions for a Revised Bird-Banding Terminology. By Mabel Gillespie.—Emphasizes the loose use of the terms return, repeat and recovery and suggests a more definite terminology.

The Statistical Trends of Banding. By O. L. Austin, Jr. and J. M. Dallavalle.—Discusses methods by curve plotting of ascertaining from banding data the number of Terns in a colony and the number of young produced annually; also from the same method, when data are more numerous, the bird population of the country at large.

The Distribution of the Rough-winged Swallow in New England. By John B. May.—Suggests banding as a method of ascertaining the migration route of the species.

Two Additional Foot Diseases of Birds. By T. E. Musselman.

The Further History of a Nesting Pair of Juncos. By W. P. Smith.

Evening Grosbeak Recoveries Indicating an East-and-West Movement. By M. J. Magee.

To our mind the most important item in this number is J. A. Gillespie's note on 'Homing Instinct in Cowbirds' recording the return of a female Cowbird to his trapping station after having been successively removed to places two, three, eight and twenty miles distant. Within four hours in each case she was back in the trap. Here, as the writer says, is a bird that we should regard as lacking home instinct but which seems to have as definite a "territory" as the Cuckoo of England or any of our nest building species.

The Ibis.—(XII series) VI, No. 1. January, 1930.

The Birds of Zanzibar and Pemba. By J. H. Vaughan.—A very fully annotated list giving detailed accounts of the habits, etc. of the species.

Geographic Variation in *Aulacorhynchus prasinus*. Gould. By Donald R. Dickey and A. J. van Rossem.—Four races are recognized, of which *A. p. stenorhabdus* (p. 52), Volcan Santa Ana, Salvador and *A. p. volcanius* (p. 53), Volcan San Miguel, are described as new.

Remarks on the European forms of *Haematopus ostralegus* L. By Finn Salomonson.—Recognizes three subspecies including *H. o. malacophaga* (p. 58) Iceland, here described as new. Typical *ostralegus* breeds in Scandinavia and on the Baltic and on the German coasts, while the British and Dutch birds are *H. o. occidentalis*.

The Birds of the Rawal Pindi District, N. W. India. By Hugh Whistler.—Full notes on distribution and time of occurrence, etc.

Notes on the Dates of Issue of G. R. Gray's 'Birds' in the Zoology of the Voyage of the 'Erebus' and 'Terror' during the years 1839 to 1843, etc. By Gregory M. Mathews.—Includes also dates for the Voyage of the 'Coquille', notes on the editions of 'Gray's List of the Genera of Birds 1840' and corrections to the author's paper on 'Peale's Birds of the U. S. Exploring Expedition.'

Further Notes on the Birds of the Balearic Islands. By P. W. Munn.

Further Notes on the Birds of Alderney. By W. R. Thompson.

Bulletin of the British Ornithologists' Club.—CCCXXXVI.
November 28, 1929.

Probable Recurrence of the Lammergeier in the Southwestern Alps. By H. M. Wallis.

New forms named: *Dryobates kizuki petersi* (p. 18) for *D. k. harterti* by Kuroda.

Stictocarbo punctatus sassi, from "North Island" (p. 19); *Huttonena* (p. 19) for *Cabalus* preoccupied, and *Sterna striata aucklandornis* (p. 19) for *S. bethunei* Buller, all by Mathews.

Bulletin of the British Ornithologists' Club. CCCXXXVII.
January 9, 1930.

Address of the chairman, Dr. P. R. Lowe, on "Hybridization in Birds in its possible Relation to the Evolution of the Species." David Bannerman describes *Ptilopachus petrosus saturator* (p. 33), from Cameroon.

Bulletin of the British Ornithologists' Club. CCCXXXVIII,
January 27, 1930.

Lord Rothschild called attention to the fact that there were sixteen species of Birds of Paradise of which only one or sometimes two specimens are known and exhibited specimens of all but four.

G. M. Mathews proposed the following new genus and subspecies: *Doreenia* (p. 41), for *Nestor notabilis*; *Anthus novae seelandiae taupoensis* (p. 42), Lake Taupo, N. Z.; *Cyanoramphus auriceps novana* (p. 42), North Island, N. Z. and *Limnocolinus acuminatus juva* for *L. a. rufescens* Mathews preoccupied.

British Birds. XXIII, No. 7. December 2, 1929.

The Behaviour of Starlings in Winter. By V. C. Wynne-Edwards.—The concluding part of a most interesting study.

The Act of Eviction by a Young Cuckoo. By F. Howard Lancum.—The author witnessed the repeated eviction of an egg of its foster parents by a young Cuckoo, and finally succeeded in securing photographs of the operation at all its stages. The little bird, blind and featherless, managed regularly to get the egg on the hollow of its back and then climbed up the side of the nest and projected it over the rim.

British Birds. XXIII, No. 8. January 1, 1930.

On the Breeding Habits of the Manx Shearwater. By R. M. Lockley.
—On the Island of Skokholm, off the coast of Pembrokeshire, England,

where some 5000 pairs of the birds nest in holes in the ground. Full and interesting details are presented.

British Birds. XXIII, No. 9. February 1, 1930.

Notes from Reservoirs and Sewage Farms.—A study of transient waders on a sewage farm in 1929. By T. A. Coward and Notes from Staffordshire Reservoirs by A. W. Boyd, and from other stations by H. G. Alexander and C. Oldham. Such locations seem to attract migrant water birds in England as they do in America.

Double Brooding of the Nightjar. By D. L. Lack.

Some Breeding Habits of the Goosander. By A. S. Gorgon.

The Bateleur. I, No. 4. October, 1929.

Albinism in African Birds. By Austin Roberts.—A list of specimens.

Palearctic Waders in Africa. By C. B. Ticehurst.

A Check-List of the Birds of Trans-Nzoia District of Kenya Colony. By a Committee of East African Ornithologists.—146 species listed in this installment.

The Emu. XXIX, Part 3. January, 1930

Parrots of the Genus *Polytelis*. By J. A. Ross and F. E. Howe.—With a colored plate of *P. swainsoni* and *P. anthopeplus*.

Feeding Habits of the Lyrebird. By M. S. R. Sharland.—Wading in water six inches deep and submerging the head to pick up food from the bottom.

Royal Australian Ornithologists' Union: Twenty-eighth Annual Congress. Held at Adelaide, November 8-9, 1929.

Questions of Distribution. By the late A. J. Campbell.—Dealing with Australia.

Economic Value of Birds. By J. N. McGilp.

Notes on Sea Birds between Melbourne, Victoria and Durban, South Africa. By R. A. Falla.

A Curious Habit of the White-eared Honeysucker. By K. A. Hindwood.—Alighted repeatedly upon men's heads and endeavored to gather hair for its nest.

Notes on Birds Observed in Mid-Western Australia in October, 1927, with a Description of a New Species of *Coracina*. By E. Ashby.—*Coracina gascoynensis* (p. 190).

A Possible Instance of Polyandry. By K. A. Hindwood.—*Malurus lamberti*.

The Preservation of Our Birds. By Spencer Roberts.

Secretary's Report, List of Members, and Account of Outings in Connection with the meeting.

Obituaries of Archibald James Campbell and John Arthur Leach.

Alauda. I, No. 6. November 15, 1929. [In French.]

Cettia cetti cetti in the west of France. By Noel Mayaud.

Essay on the Bullfinches of France. By H. Jouard.

Sexual Habits of the Marsh Accentor. (*Prunella modularis*). By J. Delamain.

Observations on Birds of the Southern Outskirts of Paris. By P. Estitot (continued, and concluded in No. 7).

Alauda. I, No. 7. December 28, 1929. [In French.]

Remarks on the Osteology, Ethology and Reproduction of *Parus atricapillus subrhenanus*. By H. Heim de Balsac.

The Vision of Birds. By Dr. Rochon-Duvigneaud.

An egg of the Great Auk apparently hitherto unrecorded is described from the "College des Chartreux de a cille de Lyon."

L'Oiseau. X, Nos. 9, 10, 11, 12. September-December, 1929. [In French.]

Ornithological Excursions to Rousic Island on the North Coast of France By A. Ropars. (9).

Characteristic Ornithological Fauna of the Dept. Loir-et-Cher. By R. Reboussin. (9, 10, 11, 12).

Are Sand Grouse Injurious? By Dr. C. Arnault.—Decides in the negative. (9).

Characters of the Polynesian Avifauna. By J. Berlioz. (9 and 10).

Revision of the Genus *Rhamphastos*. By G. deGermigny. (9). 14 species recognized.

The Huppe of Reunion (*Fregilupus varius*). By M. LeGendre. (11 and 12).

Contribution to a Study of the Anatomy of *Monias benschi*. By L. Lavauden and H. Poisson. (11).

The Bulbuls of French Indo-China. By J. Delacour. (12).

Journal für Ornithologie. LXXVIII, Heft 1. January, 1930. [In German.]

Breeding of the Crossbill in Schleswig-Holstein with Biological Remarks. By W. Nolte.

A Review of the Breeding Time in Birds of the Island of New Britain. By O. Meyer.

Biological Breeding Notes during a Residence in the Mexican State of Vera Cruz. By F. Heilfurth.—Notes on eighteen species mainly Passeres.

A Contribution to the Biology of the Birds of Angola.

On the Migration of *Sylvia curruca*. By H. Frhr. Geyr von Schweppenburg.

The Development and Structure of the Red Papillae in the Downy Young of *Fulica atra*. By G. Steinbacher.

Remarks on the Breeding Birds of Brazil. By Emilie Snethlage.—Proposes three zones each with two subdivisions.

Remarks on Geographic Variation in *Charadrius hiaticula*. By Finn Salomonsen.—Five races are recognized, *C. h. hiaticula* of the mainland of

Europe; *tundrae* from northern Scandinavia to Siberia; *psammodroma* subs. nov. (p. 72) Faroes, Iceland, Greenland and Cumberland Sound; *placidus* Ussuriland, Manchuria, north China to Japan; and *semipalmatus* Alaska to Cumberland Sound. The last has been regarded as a distinct species by American ornithologists.

Zosterops erythropleurus in Ussuriland. By L. Shulpin.

A Second Collection of Birds from Kwangsi. By E. Stresemann.

Possible Movement and Restraint of Movement in the Neck of Hornbills. By H. Desselberge.

Breeding of White Storks in Oldenburg. By Minister Tantzen.

Pericrocotus roseus divaricatus. Its Biology and its Breeding in far eastern Russia. By L. M. Shulpin.

Dr. Emilie Snethlage. In Memoriam. By H. Snethlage.—With a portrait.

Journal für Ornithologie. LXXVII, Heft 4. October, 1929. [In German.]

Scientific Deductions from Skillful Bird Breeding. By Margot Chodziesner.

Additions to the Review of the Palearctic Ptarmigans. By P. Sserebrowsky.

Ornithologische Monatsberichte. 37, No. 6. November, 1929. [In German.]

The European Bird-banding Centers. By R. Drost.—A list with extent of activities and band inscriptions.

Birds' Eggs from Kansu. By M. Schonwetter.

New Forms from Baillundu-Land, Benguella. By O. Neumann. *Molacilla capensis simplicissima* (p. 176), *Turdus sinensis kösteri* (p. 177), *Dioptrornis brunneus bailunduensis* (p. 177).

Hypotaenidia philippensis admiralitatis is described as new by O. Meyer (p. 190) from Admiralty Island.

Ornithologische Monatsberichte. 38, No. 1. January, 1930. [In German.]

Researches on the Eggs of *Megapodius eremita*. By O. Meyer.—Followed by a discussion of the duration of embryological development.

The Suschken Goose (*Anser neglectus*) in Russia. By H. Grote.

Eupeles castanonotus par (p. 17) from Dutch New Guinea is described by W. Meise; *Erythrura synoica beicki* (p. 17), *Perdix barbata kukunoorensis* (p. 18) both from northern Kansu, by E. Stresemann and *Nycticorax caledonicus cancrivorus* (p. 18), Bismark Archipelago by O. Neumann.

Beiträge zur Fortpflanzungsbiologie der Vogel. 6, No. 1. January 1930. [In German.]

Mainly devoted to papers on Johann Friedrich Neumann in celebration of the 150th anniversary of his birth.

Also several papers on local breeding birds in Germany.

Der Vogelzug.¹ I, No. 1. January, 1930. [In German.]

This excellent little journal is to be devoted entirely to the study of bird migration and bird banding. This first issue contains accounts of the work being carried on at the stations at Heligoland, Rossiten and in Russia also an account of the migration of the Coot as shown by recoveries of birds banded at Rossiten. By E. Schuz. Another paper by R. Drost discusses the Migration of the Lumme (*Uria aalge heligolandica*) from birds banded at Heligoland.

Maps serve to illustrate the movements of the species.

Der Ornithologische Beobachter. XXVII, Heft 2, 3, and 4. November and December, 1929, and January, 1930. [In German.]

Numerous notes and papers on the birds of Switzerland and accounts of the activities of the Swiss Society for bird protection.

The January issue contains a table of spring arrival dates for nineteen Swiss migrants for the years 1923 to 1926.

Le Gerfaut XIX, Fasc. 3. 1929. [In French.]

Ornithological observations in Belgium 1928-1929. By G. van H. a Wyneghem.

Ornis Fennica VI, No. 4. 1929. [In Finnish.]

Thirteen Days on Klavskar, Aland. By I. Hortling.

A Case of Albinism in *Muscicapa s. striata*. By A. J. Kopperi.

Notes on the birds of Finland.

Danske-Fugle. X, Nos. 1 and 2. 1929. [In Danish.]

Local Lists of Danish birds and other notes on bird banding, etc.

Ardea. XVIII, Afl. 3. 1929. [In Dutch.]

Location of Storks in Holland in 1929. By Fr. Haverschmidt.—209 occupied nests recorded and plotted on a map with full accounts and excellent photographs.

A July Trip to Swedish Lapland. By G. A. Brouwer.

A Contribution to the Knowledge of the Breeding Habit of *Parus b. biarmicus*. By C. G. B. Ten Kate.

Kocsag. II, No. 3-4. 1929. [In Hungarian and other languages.]

Numerous local notes etc. Also the following in English or with English translations.

Seven Weeks in Iceland. By W. M. Congreve.

A Study of the Nasal Cavity of the Common Cormorant (*Phalacrocorax carbo subcormoranus*). By P. deMihalik.

A Contribution to the Natural History of *Aegyptius monachus*. By S. von Thurn-Rumbach.

¹ This new quarterly journal is edited by Dr. R. Drost and Dr. E. Schuz in conjunction with the German Ornithological Society. Subscription 8M. per annum. R. Friedlander & Sohn, Berlin NW 6, Karistr. 11.

AVICULTURAL MAGAZINES.

Aviculture I. No. XII. December, 1929.

Agapornis Lovebirds with a colored plate of the species. By C. T. Metzger.

Aviculture II. No. I. January, 1930.

An Australian Sextette. By Leon Patrick.—Six Australian Parrots with a colored plate.

Breeding Rare Pheasants. By C. Scott Hopkins.

Aviculture II. No. II. February, 1929.

Whydahs.—With a plate of a male Paradise Whydah bird in the aviary of Karl Plath.

A Study of Hybrid Doves. By L. J. Cole.—With a list of crosses.

The Avicultural Magazine. VII, No. 12. December, 1929.

Breeding of Rheinhardt's Argus Pheasant in Japan. By N. Taka-Tsakasa.

Sand Grouse. By D. Seth Smith.

The Avicultural Magazine. VIII, No. 1. January, 1930.

The Blue Touraco.—With a colored plate.

Notes on Rare Parrots of the Genus Amazona. By Sydney Porter.—*A. guildingi*, *versicolor*, *caymenensis*, *bodini* and *autumnalis*. (Also *A. bouqueti* in the February issue.)

The Avicultural Magazine. VIII, No. 2. February, 1930.

The White-bellied Touraco.—With a colored plate.

Nesting Habits of the King Bird of Paradise. By W. J. C. Frost.—Nested in a hole in a tree as observed in the Aru Islands and in captivity.

Vögel ferner Ländes. III, Nos. 2, 3, and 4.

Hummingbirds. By Dr. E. Schaz.—With numerous reproductions of Gould's plate (2).

Agapornis fischeri. By N. Grasl.—Colored plate of this and allied species (2).

An Ornithological Expedition to Egypt. 1929. By C. H. Cremer (3).

Birds of Abyssinia. By J. Havestadt (3).

Swan-Goose Hybrids. By F. Voss.—With photographs of various crosses.

CORRESPONDENCE.

Extirpation of the Azorean Bullfinch.

Editor of 'The Auk':

We have recently received, through the courtesy of the American Museum of Natural History, a report¹ on "A Collection of Birds from the Azores" by our friends Dr. Robert Cushman Murphy and Dr. James P. Chapin of the American Museum of Natural History.

In this report the authors have unwittingly reopened a thorny question which has been the subject of controversy in the past, and has now reached, in our opinion, an acute stage where drastic action should be taken. We refer to the repeated collecting of specimens for Museums of species which are admittedly on the verge of extinction, but which could, if proper means were taken, be saved from the fate which threatens them.

The case in point which will serve equally as an instance for many others is that of the Azorean Bullfinch (*Pyrrhula pyrrhula murina* Godman). We will briefly sketch the history of this bird in its island home and let the facts speak for themselves.

The Azorean Bullfinch is first mentioned in literature by Pucheran (Rev. et Mag. Zool. 1859, pp. 409-414), who had recently received a specimen of the "Bouvreuril" from M. Morelet. This last gentleman published in 1860 his 'Histoire Naturelle des Açores' in which he discusses the status of the Bullfinch but erroneously believed it to be a migrant from Spain. Drouet in 'Faune Açoréennë,' 1861, remarked that during his sojourn on the Island of San Miguel in 1857 in company with his companion Morelet they found the Bullfinch "Abondant alors et très-destructeur."

Bocage's 'Ornithologia dos Açores' adds nothing to our knowledge up to date, but from F. Du Cane Godman (who was the first naturalist to describe and name it *murina*) we have Drouet's statement of its status confirmed. It was evidently numerous in 1865 for Godman "shot thirteen individuals in the same poplar tree in a few minutes" (!) (Ibis, 1866, p. 98), and in his 'Natural History of the Azores,' 1870, remarks "since my return to England nineteen additional specimens have been sent me." According to his own observations the bird is "confined to the mountainous parts of St. Michael's, where it is tolerably abundant." We may pass over Simroth's account 'Archiv für Naturgeschichte' 1888, p. 185, for he does not appear to have added to the destruction and pass to the visit of Ogilvie-Grant to the Archipelago in 1903. The results of this expedition were published by Hartert and Ogilvie-Grant in 'Novitates Zoologicae' xii, 1905, and on p. 125 Ogilvie-Grant wrote, "This Bullfinch, by far the most interesting bird met with in the Azores, though plentiful enough when first discovered by Mr. Godman, is now very scarce, and its extirpation is

¹ American Museum Novitates, No. 384, Nov. 6, 1929.

probably only a matter of a few years (itals. ours). Its range was apparently always a very restricted one, being limited to . . . etc. Major Chaves¹ informed us that formerly he had sent many skins of this bird to the various Museums in Europe, but that of late years he had been unable to procure any more specimens . . ." Quoting a local resident—Senhor Jeronymo—Ogilvie-Grant continues,—“he could remember the time when it was no uncommon sight to see twenty or more at one time on a peach tree.” adding,—“ . . . the fact remains that this very local bird must soon disappear, and as there seemed no chance of saving them from the fruit-farmer we felt no compunction in securing such specimens as we met with.” We shall revert to this sentence later. Twelve specimens were finally secured.

It is apparent already from the accounts quoted that the Azorean Bullfinch was, at the date of which we write, (1903) fighting for its very existence, and as it is described by all who know it as—to use Godman's words—“so tame that it takes but little notice of the report of a gun”—its chance of surviving seemed hopeless.

From 1903 until 1907 the little band remaining was allowed to go in peace as far as collectors were concerned, the local farmer at whose door its imminent extermination is now laid, was presumably just as active in his methods of destruction then as he is now, but let us see what happened. Left to the tender mercies of the fruit-farmer and *without* the assistance of the collector—the Bullfinch *increased in its stronghold to such an extent* that by 1907—a period of but four years from the date when Ogilvie-Grant believed it to be on the verge of extinction—an Austrian collector slaughtered in the space of eight weeks no less than fifty-three specimens of this beautiful species, in this case for sheer greed of £. s. d.

It fell to one of us to draw attention to this atrocity in a letter to ‘The Ibis’ 1908, p. 198, and it was there pointed out that if not already doomed by this last deplorable slaughter the Bullfinch could even then be saved from extermination.

We had hoped against hope that it might be allowed to remain in peace, for what possible gain to science can there be in the destruction of a single further specimen. Above all we have looked to our colleagues in America to hold sacred such a bird as this—to reply that it is doomed at the hands of the fruit-farmer we have already shown to be a fallacy! We have both had experience in Spanish and Portuguese islands and know that no peasant will waste a cartridge on a Bullfinch unless he is sure of payment for the skin—and how many *can* skin! To save his fruit blossom he will certainly not fire a shot!

To read Dr. Murphy's and Dr. Chapin's account of a collector's recent exploits in San Miguel is to make us wonder if the preservation of bird life threatened with imminent extermination is indeed so dear to the heart of the American nation as we are constantly asked to believe. Senhor Correia

¹ A well known resident in the islands who interested himself in Natural History.

offered one dollar for each Bullfinch "but the man demanded two, so Correia went off to try his luck alone." The melancholy tale ends in the destruction of five more Bullfinches, all, in fact, that could be found—and this illuminating sentence;—"Many of the people of Furnas stated that they had not seen a *prêlo* for ten years, and some of the younger folk, who knew the bird by reputation, asked to examine Correia's specimens."

Sir, is this an exploit to be proud of and to chronicle without a word of regret in the valuable 'American Museum Novitates'? Surely the days have gone by when we can boast of exploits such as Senhor Correia's, where no stone was left unturned by bribery or strategy to obtain as many skins as possible of a bird which Senhor Correia, from his own showing, knew to be perhaps the last of its kind! Senhor Correia is an experienced collector who has done much valuable work for the American Museum in the past—and he knew well what he was about, but in all fairness to the authorities of the American Museum we must add that Correia's visit to the Azores "was purely personal."

Now Sir, this is not a personal indictment of the conduct of a single individual and we need hardly add that it is not directed against the American Museum of Natural History. We hold no brief for our own countrymen and we consider the statement that, if a species is verging on extermination we are justified in collecting all the specimens we can—an entirely mischievous doctrine to preach—although doubtless made in all good faith at the time and without the knowledge now at our disposal. Moreover, we believe that the detailed manner in which the habitat of the Bullfinch has been described by British ornithologists has led to the inevitable result, but is there to be no end to this greed for collecting vanishing species—especially on islands? Have we not reached the stage when we have learned all that there is to learn from skins and specimens? America is taking the lead in so many matters of vital welfare to the people of Europe. May not we beg of her great Museums to help us preserve rather than to destroy the precious Avifauna which remains to us? We confidently believe that it is in their hands, for alas! there are many "Azorean Bullfinches" struggling for preservation. If all American Museums take their tithe of our vanishing fauna what can we hope to save! If, in the case of this Bullfinch, we have reached a stage at which we have learnt all that can be learned from its mere skin and feathers, what possible scientific result is to be gained by the acquisition of constantly repeated series of specimens which cannot throw any further light on facts already well known?

We do not wish this letter to be merely a condemnation of present day collecting methods but rather that it should draw attention to the urgent need of co-operation between America and ourselves if the vanishing avifauna is to be preserved.

The signatories of this letter are both field-collectors of some experience and fully realize the joy of obtaining a rare specimen for an institution of which we are justly proud. One of us has under his charge the greatest

collection in the world. We both realize the value of such a collection to science, but we realize even more fully the urgent need, indeed the duty, of preserving *alive* for future generations the bird life which is threatened with extermination in so many parts of the world. It is not enough for Great Britain to preserve the fauna of its own possessions or America the fauna of the States, with active co-operation between us we believe that we can save many species which would otherwise be threatened with extermination. Without American sympathy and co-operation our single efforts would be well-nigh hopeless.

We are, Sirs,

Your Obedient Servants,

PERCY R. LOWE,

Hon. Fellow of the American Ornithologists' Union.

DAVID A. BANNERMAN.

Corresponding Fellow of the American Ornithologists' Union.

British Museum (Natural History), London. S. W. 7.

6th December, 1929.

Thinking that Drs. Murphy and Chapin would desire to comment upon the above and feeling that it would be preferable to have their remarks appear at this time instead of waiting until the July issue the Editor submitted a copy of the above to them and received the following reply.

Editor of 'The Auk':

With all the sentiment, and most of the comments, expressed in the letter from Dr. Lowe and Mr. Bannerman, no one interested in the conservation of wild life can take issue. If, however, their communication is destined to have a practical effect upon the preservation of the Azorian Bullfinch, they and other naturalists will have to thank the very paper in which the current status of this unfortunate bird is chronicled "without one word of regret."

Directly or indirectly two great British natural history museums have been involved in killing many of the bullfinches of San Miguel. In connection with the latest instance of which we know, that of Ogilvie-Grant in 1903, it was recorded, quite unregretfully, that since this very local bird had no chance of being saved from the fruit-farmer, "we felt no compunction in securing such specimens as we met with." After this the bird was forgotten, and abandoned to the mercy of the fruit-growers, until a later collector, at whom a reproving finger might be pointed, appeared on the scene.

The whole history of the Azorian Bullfinch, as related in the works cited by Dr. Lowe and Mr. Bannerman, is that of a creature wiped out by the native residents of San Miguel, and not by persons interested in preserving specimens. So far as we know, there is no demonstrable basis for the

statement of our friends and critics that the Bullfinch "increased in its stronghold" between 1903 and 1907. Let it be recalled that the collector who quite outrageously slaughtered fifty-three specimens during the latter year spent eight weeks in so doing. Correia obtained his five birds during the course of only four days in the field, and at the least favorable season. It is not unlikely that the Bullfinch may still be saved if the government authorities of the Azores will legislate to protect it from its human enemies, both fruit-growers and collectors. Until such steps are under way, there is hardly ground for condemning ornithologists who would prefer to see the last examples of the species preserved in a museum of world-scope rather than rotting under a peach tree.

The keeper of the greatest bird collection in the world is in a position to know with what zealous care the treasures of that collection are guarded and retained—what a large reserve must exist under his charge before the authorities are willing to regard any of the material as "duplicate," and subject to be released for enriching the collections of sister educational institutions. Yet younger museums, which are also centers of active ornithological research, likewise feel the need for an adequate representation of the earth's avifauna, although none would wish to attain its ideal at the sacrifice of a single species that might otherwise be saved in its natural range.

So far as one can judge from published records, there seem to be approximately one hundred and fifty specimens of the Azorian Bullfinch preserved in European collections; in America the grand total may be as many as eight!

Your correspondents have been kind enough to note that the incident with which they find fault did not take place on an American Museum expedition. In justice to Mr. Correia, we must add that he was under no untoward inducement to collect the Azorian Bullfinch. He knew that we lacked and wished to obtain specimens, but he received for them the same price paid for Blackbirds, Serins and other common species of the islands. He had planned to obtain a Bullfinch or two during an earlier visit, but had been repeatedly informed that it was too late. In November, 1927, he was somewhat sardonically challenged by the curator of the museum at Ponta Delgada to find a single one of these finches. Correia accepted this challenge, with the result that we know at least that the species is not extinct. Under the circumstances here outlined, we fail to discern his serious culpability. Will Dr. Lowe and Mr. Bannerman now join us in the one effort that might prove practicable, namely that of seconding our petition of the Portuguese authorities that the Bullfinch of San Miguel be accorded special and rigid protection?

ROBERT CUSHMAN MURPHY
JAMES P. CHAPIN

New York,
Jan. 14, 1930.

Saving Disappearing Species.

Editor of 'The Auk':

Some little while ago I called the attention of the American Ornithologists' Union to an experiment for preserving in captivity certain species of Parrakeets which are threatened with extinction in a wild state from causes largely beyond human control.

During the past two years my most able helper, Dr. Leon Patrick of Smith Grote Buildings, Orange, California has met with the success that I anticipated, having with one exception, reared young of every species of which he has had acclimatized pairs and having obtained eggs from all. In the case of two species young of the second generation have been raised. In spite of these encouraging results, however, the venture is still being sadly handicapped by lack of interest and lack of adequate financial support for the purchase of the necessary ground and aviary equipment. Dr. Patrick, though an expert aviculturist is not a wealthy man, and having been put to very great expense in obtaining breeding stocks I find my own ability to do more, strictly limited.

I should like therefore once more to urge upon American ornithologists the more serious recognition of the wonderful opportunity that they are neglecting. Every year some species of bird in some part of the world is coming near to extinction and cannot be saved or will not be saved in its natural habitat in a wild state. In many cases, however, the doomed species can be propagated in confinement and if this can be done surely it is a thousand pities not to do it. No one is keener than myself on preserving birds in a natural state and no one is more opposed to the keeping of birds in a captivity which is cruel or irksome, but it is sheer folly to shut one's eyes to the fact that many birds cannot survive in their native habitat and that there are certain methods of keeping certain birds which inflict absolutely no suffering at all either physical or mental. We preserve inanimate treasures for posterity: why neglect to preserve living ones?

Yours truly,
TAVISTOCK.

*Warblington House,
Havant, England.*

Henderson's "The Practical Value of Birds."

Editor of 'The Auk':

In reading "The Practical Value of Birds" by Junius Henderson, it is noted that most of the recent contributions to economic ornithology by Canadian authors are neither mentioned in the text nor included in the bibliography. This is particularly unfortunate when it is seen that the author of the book in question considered that he was covering the Canadian field, for he states, "this volume is an effort to analyze and digest the North American Literature of the subject." Many Canadian references, some of considerable importance, are omitted. A list of thirteen references

which were apparently missed by this author, although all of them refer to Canadian studies in economic ornithology, and were noted in 'The Auk' as they appeared, is appended. I have no complete bibliography of Canadian contributions on this subject, but since the omission of so many of them was not noted in the review of this book in 'The Auk,' I think that it is desirable to call attention to this to prevent future authors on this subject from repeating the omission.

Some of the earlier, and a few recent Canadian papers are included in the bibliography as follows:

Allan Brooks,	3 titles	H. H. Pittman,	1 title
J. H. Fleming,	2 titles	W. E. Saunders,	1 title
C. Gordon Hewitt,	1 title	L. L. Snyder,	1 title
J. A. Munro,	1 title	P. A. Taverner,	1 title
C. W. Nash,	1 title		

Some Canadian references omitted by the author of 'The Practical Value of Birds.'

J: A. Munro.—

The Band-tailed Pigeon in British Columbia. Canadian Field-Naturalist, Vol. 36, No. 1.

The Japanese Starling in Vancouver, B. C. Canadian Field-Naturalist, Vol. 36, pp. 32-33.

Preserving Order in a Bird Sanctuary. Canadian Field-Naturalist, Vol. 36, pp. 35-37.

Notes on the Water Birds of Lake Newell, Alta. Canadian Field-Naturalist, Vol. 36, pp. 89-91.

Winter Bird-life at Okanagan Landing, B. C. Canadian Field-Naturalist, Vol. 37, pp. 70-74. (Note on food of Horned Grebe.)

The Pileated Woodpecker. Canadian Field-Naturalist, Vol. 37, pp. 86-87.

A Preliminary Report on the Relation of Various Ducks and Gulls to the Propagation of Sock-eye Salmon at Henderson Lake, V. I., B. C. Canadian Field-Naturalist, Vol. 37, No. 5, No. 6.

Notes on the Relation of the Dipper (*Cinclus mexicana unicolor*) to Fishing Interests in British Columbia and Alberta. Canadian Field-Naturalist. Vol. 38, pp. 48-49.

Miscellaneous Bird notes from Southern Vancouver Island, 1923. Canadian Field-Naturalist, Vol. 37, pp. 147-149.

(Notes on food of Glaucous-winged Gull and Band-tailed Pigeon.)

Lead Poisoning in Trumpeter Swans. Canadian Field-Naturalist. Vol. 39, pp. 160-161.

The European Gray Partridge in the Okanagan Valley, B. C. Canadian Field-Naturalist, Vol. 39, pp. 163-164.

Notes on the Economic Relations of Kennicott's Screech Owl (*Otus asio kennicotti*) in the Victoria Region. Canadian Field-Naturalist. Vol. 39, pp. 166-167.

P. A. Taverner.—

The Double-crested Cormorant (*Phalacrocorax auritus*) and its relation to the Salmon Industries on the Gulf of St. Lawrence. Museum Bull. 13, Biological Series 5, Canada, Apr. 30, 1915. (National Museum of Canada) pp. 24.

Yours very truly,

HOYES LLOYD.

Ottawa, Canada

OBITUARIES.

JOHN JAMES DALGLEISH, of Brankston Grange, Alloa, Scotland, elected a Corresponding Fellow of the American Ornithologists' Union in 1884, died Dec. 29, 1921. He was born in 1836 and at the time of his death was 85 years of age. He was deeply interested in the local avifauna and was a member of the group of Scotch ornithologists which gathered around Robert Gray, author of 'The Birds of the West of Scotland.' In 1885 he published a list of birds of Culross and Tulliallan in the appendix of the second volume of Beveridge's 'Culross and Tulliallan, or Perthshire on Forth.' His collection of eggs was extensive and contained representatives of a number of species from central Uruguay and Paraguay on which he published papers in 1885 and 1891.

Dalgleish's contributions on birds appeared mainly in the 'Scottish Naturalist,' the 'Proceedings of the Royal Physical Society of Edinburgh,' the 'Bulletin of the Nuttall Ornithological Club,' and 'The Auk,' and were largely devoted to recording unusual or accidental occurrences, a subject in which he seems to have been especially interested. Among other notes he recorded the first occurrence in Great Britain of a specimen of the Desert Wheatear taken near Alloa. To American readers his most interesting work was his 'List of Occurrences of North American Birds in Europe,' which appeared in the 'Bulletin of the Nuttall Ornithological Club' in 1880 and 1881 and recorded 67 species observed up to that time. In the first and third volumes of 'The Auk' he recorded the occurrence of the Royal Tern at Tangiers in Morocco, a new breeding place of Leach's Petrel on the island of Rona in the Hebrides, and the discovery of a nest of Ross' Gull in Greenland.—T. S. P.

EILER LEHN SCHIÖLER, a Corresponding Fellow of the American Ornithologists' Union since 1920, and a Foreign Member of the British Ornithologists' Union since 1922, died at Copenhagen, Denmark, Aug. 13, 1929, in the 59th year of his age. He had suffered a stroke of apoplexy three years before from which he had never fully recovered. Schiöler was born Oct. 30, 1874, and from an early age was deeply interested in birds and natural history. As a young man he came to the United States to study American business methods and banking and was for a time located in Philadelphia. Returning to Copenhagen he entered his father's banking house at the age of 32 and prospered financially, amassing a considerable fortune, which, however, was almost entirely lost during the depression following the Great War.

Schiöler was not only interested in birds but had done considerable work in the field in Denmark in Iceland and in Greenland and had brought together a wonderful collection of birds, including about 22,000 specimens and 11,000 skeletons. This collection was particularly rich in representatives of the family Anatidae, a group in which he specialized and in which

he had given much attention to the subjects of molt and changes of plumage due to age. When the Sixth International Ornithological Congress convened in May, 1926, Schiöler was Chairman of the Executive Committee and did much to insure the success of the convention. He was the founder of the Danish Ornithological Union and its Chairman at the time of his death. He was also much interested in bird protection and took an active part in the preparation of the Danish game law of 1922.

During recent years Schiöler's efforts were almost entirely devoted to his magnum opus, 'Danmark's Fugle,' a comprehensive work on the birds of Denmark, Greenland, Iceland and the Faroes, in 8 volumes, of which the first two were published in 1925 and 1927, and the third, devoted to the birds of prey, was in press at the time of his death. It is greatly to be hoped that means will be found for continuing and completing this work along the lines projected by the author.

For the above facts we are indebted to the notice in 'The Ibis' for Oct., 1929.—T. S. P.

JUSTUS VON Lengerke, an Associate of the American Ornithologists' Union since 1907, died at the Newark Memorial Hospital, October 7, 1929, at the age of 75. His health had been good until very shortly before death, which came suddenly, shortly after transfer to the hospital from his home in Orange, N. J., and was due to appendicitis.

Mr. von. Lengerke was born in Oldenburg, Germany, April 23, 1854, and came to this country at the age of seventeen. He became the senior member and organizing force of the pioneer sporting goods firm of von Lengerke and Detmold and continued as an active member of that firm until 1914. For some years thereafter he still retained connection with the firm as a consulting advisor.

He was a very proficient fisherman and an extraordinary shot. He acquired a property in Sussex County, N. J., which included a little body of water known as Stag Lake. Here he bred Black Ducks and the loss of some of these at night led him to employ a pole trap with which he caught a number of Horned Owls. Finally the finding of a dead Great Blue Heron in the trap led to its discontinuance and condemnation of its use as a predator control. He then evolved the mechanical Owl decoy, a mechanical device within a mounted large Owl, so arranged that pulling a string caused the head to turn from side to side, while pulling another string raised the wings. In exposed and commanding elevations, first at Stag Lake and later in the Kittatinny Mountains in the same County, he maintained a Hawk and Crow shooting stand, operated chiefly during the fall Hawk migration period. Both points were on a well defined and heavily traveled migration path. He introduced this method of Hawk shooting into this country and he accounted for very many of the birds himself. Although he has killed a good many Red-shouldered, Red-tailed and Broad-winged Hawks at these stands, he did recognize these species as beneficial, or at least less harmful than others. He never could carry his charity far enough

to cover Sparrow Hawk or Marsh Hawk. It is doubtful if anyone ever excelled him in ability to recognize the different species of Hawks in flight at great distances.

In the collection of mounted birds which Mr. von Lengerke acquired, naturally Hawks and Owls predominated. Many fine mounted specimens had been given to others during his life, and practically all birds in fair condition shot at his stands, and for which there was not other demand, were given to the American Museum of Natural History, the National Museum, the Biological Survey and various bird students. The collection as it stands to day includes some hundred species and some exceptionally fine specimens. Most Hawks and Owls are represented by several specimens each, of wide variation. Two female Duck Hawks are exceptionally large specimens. Other specimens show extremes in coloration. Raptores are represented by Marsh, Sharp-shinned, Cooper's Hawks, Goshawk, Red-tailed, Red-shouldered, Broad-winged, Rough-legged (some notable color phases) Hawks, Golden Eagle, Duck, Pigeon, Sparrow Hawks and Osprey, Long-eared, Short-eared, Great Gray, Richardson's, Saw-whet, Screech, Great Horned and Snowy Owls. Shot over the decoy also are Ravens, Crows and Fish Crows. Game birds are represented by Baldpate and Wood Duck, Ruffed Grouse, Bobwhite, Snipe, Woodcock and European Woodcock. There is a locally collected Pileated Woodpecker, Loon and many of the common small birds, including a partially albino Robin.

Doubtless Mr. von Lengerke's attractive personality will be best and longest remembered by his many friends.—B. S. B.

DE LAGNEL BERIER, an Associate of the American Ornithologists' Union for 31 years, died at Ridgewood, N. J., Feb. 11, 1916, in the 57th year of his age. He was the son of Major L. E. and Julia Stanton Berier and was born at Fort Hamilton, Long Island, Oct. 5, 1859.

He was always interested in birds and having been trained by his father at an early age, in the use of a gun he began to collect the birds of Long Island. Most of his larger birds were mounted but the smaller specimens were made up as skins. In 1889 he moved from Fort Hamilton to Bay Ridge, N. Y., and in 1895 took up his residence in Ridgewood, N. J. After his removal from Fort Hamilton he made arrangements with a hunter at Montauk Point, L. I., to send him any unusual birds, and in this way he secured a Snowy Owl and other interesting specimens.

Berier and the late Jonathan Dwight were boyhood friends and spent many days together on hunting expeditions. They were about the same age, both were members of the Nuttall Ornithological Club, Dwight elected in 1877 and Berier in 1878, and later both were elected Associates of the Union, Dwight at the first meeting in 1883 and Berier in 1885.

Berier's first contribution on birds published before he was 20, appeared in the 'Bulletin of the Nuttall Ornithological Club' in 1879. In this note he recorded a European Widgeon from Currituck, N. C., which he saw in a bunch of ducks hung up in an express office in New York City, and in the

same note he summarized five records of the species then known for the eastern United States. In the following year he published a note on 'Giraud's *Muscicapa brasieri*,' calling attention to the fact that the specific name should be spelled *brasher*, as the bird had been named in honor of his friend, Philip Brasher, of Brooklyn. For several years he contributed notes on unusual or interesting birds observed on Long Island, and in 1896 in a note in 'The Auk' he recorded the Pine Grosbeak in the vicinity of Ridgewood, N. J. Unfortunately during the last 20 years of his life he seems to have suspended further publication of notes on birds. After his death his collection of about 300 specimens passed into the possession of his friend Doctor Dwight and now forms part of the Dwight collection of birds in the American Museum of Natural History in New York.—T. S. P.

DR. CHARLES AYRAULT DEWEY, an Associate of the Union elected in 1900, died at his home in Rochester, N. Y., June 13, 1927, at the advanced age of 85. He was born in Rochester, July 21, 1842, graduated from the Medical School of Harvard University in 1880 and obtained his license to practice in the same year. He was a trustee of the University of Rochester and, since 1903, of the Reynolds Library. In the minutes of the Board of Trustees of the Library he was described as "dignified, of a stately courtesy, thoughtful, warm-hearted in friendship, and uncommonly competent in counsel." Although associated with the Union for 27 years, apparently he made no contribution to 'The Auk.' He now rests in Mount Hope Cemetery, Rochester.—T. S. P.

FRANK ALEMAN LEACH, an Associate of the American Ornithologists' Union since 1921, died June 19, 1929, in his 83rd year. He was born at Scipio Center, near Auburn, Cayuga County, New York, August 19, 1846. In 1852 he came to California, via Nicaragua, with his mother, his father having preceded them by two years. The family lived first at Sacramento, four years, then at Napa City. Leach's boyhood, in the then almost untouched country surrounding the latter place, was spent largely in hunting and fishing, when, doubtless, he had instilled in him the love for nature and wild animals that remained so prominent a feature of his whole life. He learned the printing trade in San Francisco, and at 19, with a friend of his own age, established the 'Napa Daily Reporter,' the first daily to be printed in that community, and on which the two boys did the entire work, from setting the type to delivering the papers. The next thirty years were spent in journalism, during which time he established the 'Vallejo Chronicle,' 'Benicia Era,' and the 'Oakland Enquirer' as a daily, all of which are still running.

As a member of the California Legislature in 1880, he introduced a bill providing a close season for doves as game birds, the firstlaw affording the species any protection in the state. In 1897, under President McKinley's administration, Mr. Leach was appointed Superintendent of the United States Mint in San Francisco. He was in the building during the great

fire that followed the earthquake in April, 1906, and directed the fire fighting that saved it. In 1907 he was appointed Director of the Mint by President Roosevelt, and in that capacity he superintended the minting of the famous St. Gaudens gold pieces.

Returning to California in 1909, to make his home in the San Francisco Bay region, he became President of the Peoples Water Company. In 1918 he retired from active business life, to the beautiful country at the base of Mt. Diablo, at the Diablo Country Club, devoting most of his time to the study of nature and art. He joined the Cooper Ornithological Club in 1917, and during the years following made not infrequent visits to the Museum of Vertebrate Zoology in Berkeley, to look up information regarding birds, where the present writer made his acquaintance. He wrote two books on early California history and many short articles of a popular nature on natural history. Several ornithological papers, some of them detailing facts of decided novelty and importance, have appeared in 'The Condor.'

One who was close to him speaks of "his honesty of purpose, great industry, and quiet determination. He was by far the most industrious man I ever knew, never wasting a moment of time and pursuing the study at hand with a persistence that always led him to the bottom of things. These characteristics he possessed to the very end of his life."

Mr. Leach's love of natural history has descended to at least one of his children, Mr. E. R. Leach, of Piedmont, California, who is a most enthusiastic entomologist.—H. S. SWARTH.

CORRECTION. Of the late John A. Leach it was said, "He had a passion for exactitude. His eye for an error in manuscript or proof was keen as a hawk's for prey." It is peculiarly unfortunate under these circumstances that in the recent obituary notice in 'The Auk,' p. 134, the date of his death, Oct. 3, 1929, was erroneously given as Sept. 11. It is difficult at this distance to obtain information promptly and in spite of every precaution errors occasionally creep in. It should be mentioned also that the notice in 'The Emu', Jan. 1930, p. 230, prepared by his personal friend and assistant R. H. Croll, which may be considered authoritative, gives his name as John Arthur Leach whereas it has always appeared in the records of the A. O. U. and the B. O. U. as John Albert Leach.—T. S. P.

NOTES AND NEWS.

THE CAMPAIGN which bird-lovers have long been waging to prevent the possible extermination of the American Eagle in the United States has been carried to Congress by the introduction of bills in the Senate and House providing a heavy fine for anyone who kills a Bald Eagle "Within the continental United States, Alaska, Porto Rico, or Hawaii."

The bill is sponsored in the Senate by Peter S. Norbeck of North Dakota and in the House by Congressman August H. Andersen of Minnesota. Let everyone write to his Representatives and Senators asking them to support it. Relative to this matter Dr. T. Gilbert Pearson says: "Exhaustive investigations reveal the fact that many of these birds are killed wantonly, apparently for the mere pleasure of being able to boast of having killed an Eagle. It is also extremely rare that anyone is ever convicted in the local courts for killing an Eagle. A federal law would insure far greater protection for this magnificent emblem of our country, which is today becoming a very rare species over large areas of its range."

In Alaska where the bird is plentiful and on which a bounty is paid many thousands have been killed and turned in to the territorial authorities for the one dollar prize money which is offered. Dr. Pearson traveled extensively in Alaska to gather facts regarding this bounty system and the feeding habits of the Eagle. He learned that in that Territory, as well as elsewhere, this species feeds almost entirely upon fish and carrion. It is popularly supposed to catch many fawns, lambs, and foxes on fox-farms, but he is convinced that these cases are comparatively rare. He quotes W. R. Sproat, Assistant Manager of the Aleutian Livestock Company, operating in the Aleutian Islands, who said, "I have closely observed the habits of the Eagle pertaining to sheep-raising for three years past and have never witnessed an Eagle attacking a lamb. I have seen them carry off dead lambs, but Eagles in their present number are not a menace to the raising of sheep in the Aleutian Islands."

THE LOCAL COMMITTEE on Arrangements announces that the next Stated Meeting of the American Ornithologists' Union will be held in the week beginning Oct. 20, 1930, at the Peabody Museum in Salem, Mass.

WORK ON the new A. O. U. Check List has been going on steadily ever since the present Committee took over the task. The subcommittees on classification and on nomenclature completed their work some time ago, and the main work of compilation was then begun. Nearly five hundred proposed new forms, proposed cancellations and changes in rank or status were arranged in systematic order by the Chairman and after being typed were mailed to the members of the Committee, a family or two at a time. The returns were tabulated by the Chairman and only such forms or changes were accepted as had received a majority of at least two votes. Two thirds of the entire lot were unanimous or had but one dissenting vote.

Two copies of the 1910 List were then cut up and pasted in the order of the new classification with the accepted new forms and alterations typed

and inserted in their proper places. Then the ranges were revised to the best of the Chairman's ability and after being typed were put in place. Then the manuscript was submitted section by section to Drs. Grinnell, Wetmore, Richmond and Oberholser, who spent much time in a further revision of the ranges and in making other suggestions and corrections. With all these corrections added the sheets were sent to the printer and upon return of the galley proof, copies were sent to the members of the Committee and to some fifteen other ornithologists for further revision.

At the present time the matter is all in galley proof down to the Oscines and nearly all of the corrected galleys have been returned to the Chairman who, after the present number of 'The Auk' is off his hands, will mark them up for revision by the printer preparatory to putting the proof into pages. Meanwhile the section covering the Oscines is being set up in galleys. Incidentally all of the references have been verified as well as the type localities which will appear verbatim in the new list with the restricted locality following.

This report of progress will give some idea of the enormity of the task which many people do not at all appreciate. It should also be remembered that all the members of the Committee are busily engaged in work for the Museums to which they are attached and that work on the Check-List must be done largely in their own time and at much personal sacrifice, while the Chairman has also the burden of 'The Auk' which entirely prevents work on the Check List during the time that the magazine is being gotten out.

No one regrets the delay in the appearance of the List more than the Committee but this report will show that rapid progress is now being made and the work should be issued at a not far distant date.

ON MARCH 1 the vacancies in the various classes of Membership in the Union were as follows: Fellows 2, Honorary Fellows 1, Corresponding Fellows 20 and Members 20 (only 5 Members elected in any one year). Nominations of candidates to fill any of these vacancies should be in the hands of the Secretary before July 15.

THIS ISSUE OF 'THE AUK' contains the revised list of Deceased Members which is published once in five years. The additions since the last appearance of the list in 1925, number 118 and include the names of 8 Fellows, 2 Retired Fellows, 15 Corresponding Fellows, 6 Members and 81 Associates. The Fellows include one Founder, Robert Ridgway, 4 others elected at the first meeting, Dwight, Loomis, Nehrling, and Sage, Forbush elected in 1887, and two of the younger Fellows, Fuertes and Miller, both of whom met accidental deaths. The two Retired Fellows, Lawrence and Lucas joined the Union in 1883 and 1888 respectively. The list includes references to biographical sketches which have appeared in 'The Auk' or elsewhere and this forms a convenient index to biographies of deceased members. The total number of names in the list is 518 and references are included to nearly 400 biographies. Much effort has been expended by the Committee on Biography and Bibliography in revising and completing

the entries and any information regarding further corrections or additions which may be necessary will be appreciated.

MEETINGS OF THE UNION. Since its organization the A. O. U. has held 48 meetings—one special and 47 annual. These meetings have been held in 5 states, the District of Columbia and Canada—in Boston and Cambridge (9), Chicago, Charleston, New York (14), Ottawa, Philadelphia (7), Pittsburgh, San Francisco (2) and Washington (12). The 1930 meeting in Salem will increase the number of cities to 11. Three fourths of these gatherings have taken place in November but actually they have been distributed in six different months of the year—one in April, two in May, two in September, five in October, 36 in November and two in December. The September meetings were abandoned after the first two years, the three spring meetings were arranged with special reference to the excursions to California, and the experimental December meetings in New York and Philadelphia proved to be too late and too close to the holidays. The October meetings in Boston, Cambridge, Chicago, Ottawa and Philadelphia were all successful and in spite of the early date were well attended but on the whole, November has proved to be the most convenient and satisfactory month for the annual convention.—T. S. P.

THE CALIFORNIA ACADEMY of Sciences has recently acquired the private collections of birds of Harry S. Swarth and G. Frean Morcom, thus adding over 6000 specimens to the ornithological series in its collection.

THE SEVENTH INTERNATIONAL ORNITHOLOGICAL Congress will be held at Amsterdam, Holland, June 1-7, 1930. The President of the Congress is Dr. Einar Lönnberg, Naturahist. Riksmuseum, Stockholm, Sweden. It is hoped that the American Ornithologists' Union will be well represented at this convention and the following members have already been appointed by President Grinnell as Delegates: Dr. Frank M. Chapman, Mr. J. H. Fleming, Dr. T. Gilbert Pearson, Mr. Harry S. Swarth, Dr. Charles W. Townsend, Dr. Alexander Wetmore and Dr. Casey A. Wood. The Secretary of the Union will be glad to learn the names of any other members who expect to attend.

Information regarding the arrangements for the Congress may be obtained from the Secretary, Prof. Dr. L. F. de Beaufort, Zoological Museum, Amsterdam.

TWO MANUSCRIPT diaries of Audubon in the possession of the Museum of Comparative Zoology of Harvard University have recently been printed *verbatim et litteratim* by the "Club of Odd Volumes" and will be noticed in the July 'Auk.'

OWING to unexpected demands upon our reserve stock, the supply of Auks of all the 1929 issues and of January 1930 is nearly exhausted. Such of our members as do not maintain sets of the magazine will confer a great favor by sending any of these numbers to the undersigned or by communicating with him.—W. L. McATEE, Business Manager, 200 Cedar St., Cherrydale, Va.

(Continued from p. 2 of cover)

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THE AUK

A Quarterly Journal of Ornithology

ORGAN OF THE AMERICAN ORNITHOLOGISTS' UNION

Edited by Dr. Witmer Stone

ACADEMY OF NATURAL SCIENCES, LOGAN SQUARE

PHILADELPHIA, PA.

To whom all articles and communications intended for publication and all books and publications for review should be sent.

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THE OFFICE OF PUBLICATION

8 WEST KING STREET, LANCASTER, PA.

Subscriptions may also be sent to W. L. McAtee, Business Manager, 200 Cedar St., Cherrydale, Va. Foreign Subscribers may secure 'The Auk' through H. F. and G. Witherby, 326 High Holborn, London, W. C.

Subscription, \$4.00 a year. Single numbers, one dollar.

Free to Honorary Fellows, and to Fellows, Members, and Associates of the A. O. U., not in arrears for dues.

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Index to The Auk. (Vols. I-XVII, 1884-1900) and Bulletin of the Nuttall Ornithological Club (Vols. I-VIII, 1876-1883), 8vo. pp. vii+426, 1908. Paper, \$3.25.

Index to The Auk. (Vols. XVIII-XXVII, 1901-1910), 8vo. pp. xviii+250. 1915. Paper, \$2.00.

Index to The Auk. (Vols. XXVIII-XXXVII, 1911-1920), 8vo. pp. xviii+339. 1929. Cloth \$5.00. Paper \$4.00.

Check List of North American Birds. Second Edition, revised, 1895. Cloth, 8vo. pp. xi+372. \$1.15.

Code of Nomenclature. Revised Edition, 1908. Paper, 8vo. pp. lxxxv. 50 cents.
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